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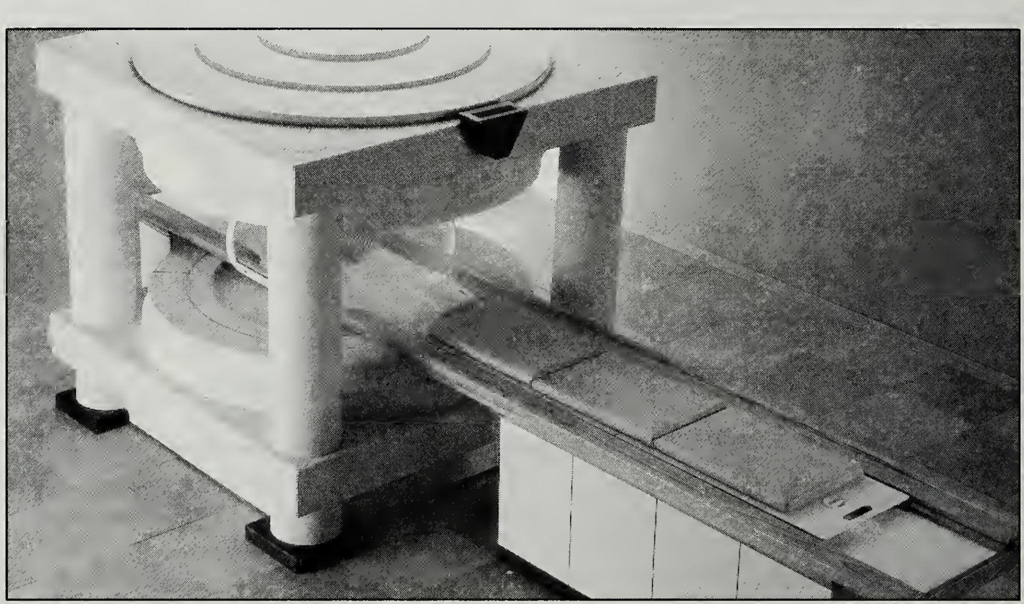

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Bicycle Injury in Connecticut

ROBERT ZAVOSKI, M.D., GARRY LAPIDUS, PA-C, TRUDY LERER, M.S.,
AND LEONARD BANCO, M.D.

Abstract—We reviewed vital statistics (1987-92) and hospital discharge data (1987-91) for Connecticut residents to describe the epidemiology of bicycle-related injuries in the state. Each year there are approximately eight deaths (rate=0.25/100,000) and 289 hospitalizations (rate=8.8/100,000) due to bicycle related injury. Nonfatal bicycle injuries resulted in 1,500 hospital days at a cost of $1.7 million dollars. Death and hospitalization rates are highest among male children and adolescents five to 19 years of age. Most of the mortality and serious morbidity from bicycle-related trauma is due to head injuries. Both fatal and nonfatal bicycle head injury rates are highest in towns with a population less than 50,000 residents.

Bicycle-related head injury is an important cause of mortality and morbidity of Connecticut children and youth and is largely preventable through the use of bicycle helmets. The data presented here allow for the development, implementation, and evaluation of community-based bicycle safety and helmet programs.

Introduction

BICYCLING is an extremely popular activity with close to 100 million cyclists in the United States.[1] Unfortunately, bicycling is not without hazard and bicycle-related injury is a major cause of mortality and morbidity. Each year, more than 900 American bicyclists are killed, 20,000 are admitted to hospitals, and 580,000 receive emergency-department treatment for injuries suffered while riding. Most of the mortality and serious morbidity from bicycle-related trauma is due to head injuries.[2] One study estimated that universal use of helmets by all bicyclists could prevent as many as one death every day and one head injury every four minutes.[3]

To date, no compilation of bicycle injury data for Connecticut residents has been published. The purpose of this paper is to present a descriptive epidemiological profile of bicycle injury to guide the development, implementation, and evaluation of bicycle safety programs in Connecticut.

Material and Methods

Demographic data on fatal bicycle injuries from 1987-92 were obtained for Connecticut residents from Connecticut death certificates, using external cause-of-injury codes (E-codes) in the International Classification of Disease System, Ninth Revision (ICD-9-CM).[4] Motor vehicle-related bicycle injury was defined as any person riding on a bicycle involved in a collision or any noncollision injury associated with a motor vehicle (E810 through 819 with fourth digit 0.6; E822 through 825 with fourth digit 0.6). Nonmotor vehicle-related bicycle injury was defined as any person injured in a collision with an object, pedestrian, or a fall from the bicycle (E826.1).

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Head injury was identified from a manual review of death certificates (1988-92), and was defined as a fractured skull ICD-9-CM codes 800, 801, 803, 804 or intracranial injury (ICD-9-CM codes 850 through 854). Facial fractures, scalp lacerations, other external injuries to the face, eye, or ear were not included as a head injury. Cause of death according to decedent town of residence was analyzed comparing towns with a population >100,000, 75 through 100,000, 50 through 75,000, and <50,000 residents.

Hospital discharge data (1987-91) for Connecticut residents admitted to Connecticut hospitals were obtained from the Connecticut Health Information Management and Exchange (CHIME), the statewide database of the Uniform Hospital Discharge Data Set (UHDDS). Cases included patients with a primary diagnosis of bicycle injury using the same E-codes listed above. Information abstracted from this database included age, sex, length of stay, hospital charges, and patient disposition. Town of residence was analyzed as described above.

Connecticut's acute-care hospitals varied in the extent that their records included an E-code (0.4% to 97.9%). E-codes were assigned to 54.4% of all injury discharges; no adjustment was made to compensate for the 45.6% underreporting of injuries. There was no difference in E-code usage rates between hospitals in urban areas with population >100,000 *vs* nonurban areas.

Table 1.—Bicycle injury death rates by age and sex, Connecticut residents, 1987—92.

	Males		**Female**		**Total**	
Age	*No.*	*Rate*	*No.*	*Rate*	*No.*	*Rate*
0-4	—	—	—	—	—	—
5-9	3	0.5	2	0.3	5	0.4
10-14	14	2.4	—	—	14	1.2
15-19	4	0.6	—	—	4	0.3
20-24	3	0.4	1	0.1	4	0.3
25-29	4	0.5	2	0.2	6	0.3
30-34	—	—	—	—	—	—
35-39	5	0.6	—	—	5	0.3
40-44	1	0.1	—	—	1	0.1
45-49	1	0.2	1	0.2	2	0.2
50-54	—	—	—	—	—	—
55-59	—	—	—	—	—	—
60-64	2	0.5	—	—	2	0.2
65-69	2	0.5	1	0.2	3	0.4
70+	3	0.4	—	—	3	0.2
Total	**42**	**0.4**	**7**	**0.1**	**49**	**0.25**

Figure 1.—Bicycle injury death rates by age and sex, Connecticut residents, 1987-92.

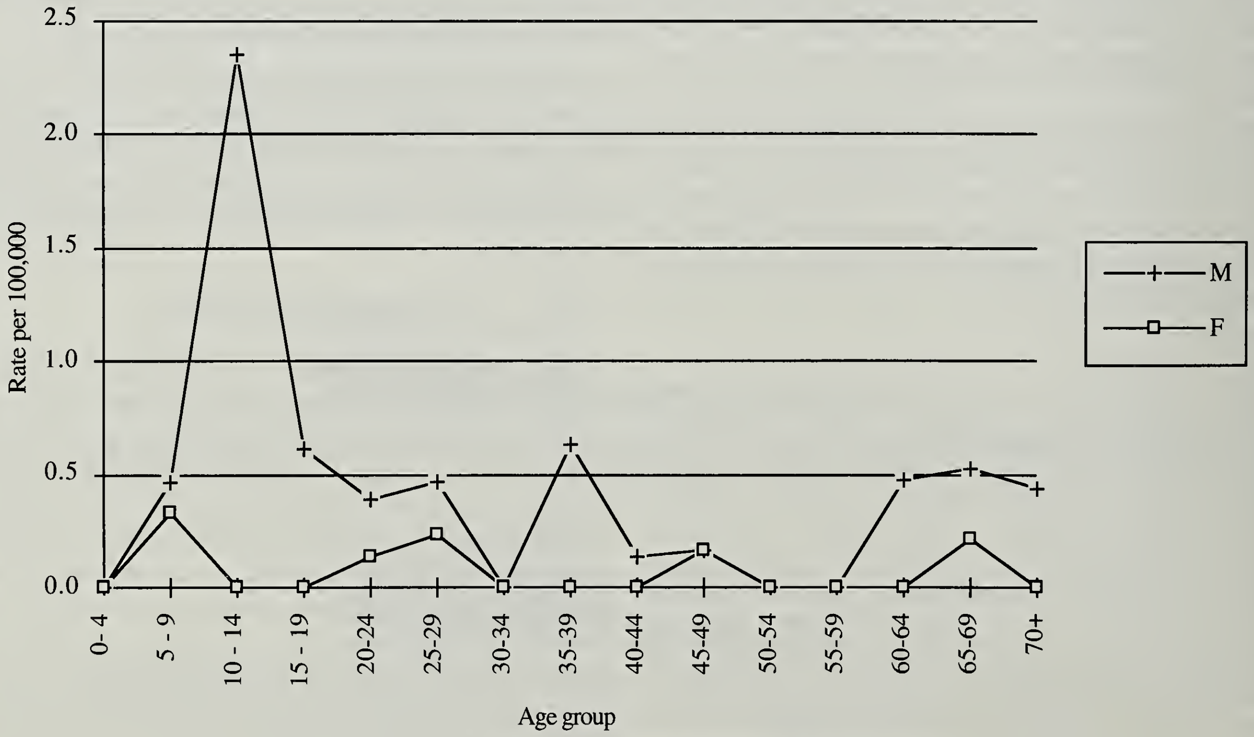


Table 2.—Bicycle injury hospitalization rates by age and sex, Connecticut residents, 1987-91

	Males		**Female**		**Total**	
Age	*No.*	*Rate*	*No.*	*Rate*	*No.*	*Rate*
0-4	42	7.2	14	2.5	56	4.9
5-9	227	42.4	98	19.2	325	31.1
10-14	358	72.2	91	19.1	449	46.2
15-19	145	26.7	17	3.3	162	15.3
20-24	68	10.7	17	2.7	85	6.8
25-29	62	8.6	24	3.3	86	6.0
30-34	44	6.0	12	1.6	56	3.8
35-39	39	5.9	9	1.3	48	3.6
40-44	29	4.8	14	2.2	43	3.5
45-49	28	5.7	6	1.2	34	3.4
50-54	16	4.2	5	1.2	21	2.7
55-59	12	3.4	4	1.1	16	2.2
60-64	23	6.6	8	2.0	31	4.2
65-69	7	2.2	6	1.5	13	1.9
70+	16	2.8	4	0.4	20	1.3
Total	**1,116**	**14.0**	**329**	**3.9**	**1,445**	**8.8**

Connecticut 1990 population data were used to calculate annualized age- and sex-specific death and hospitalization rates per 100,000 persons.^{5}

Results

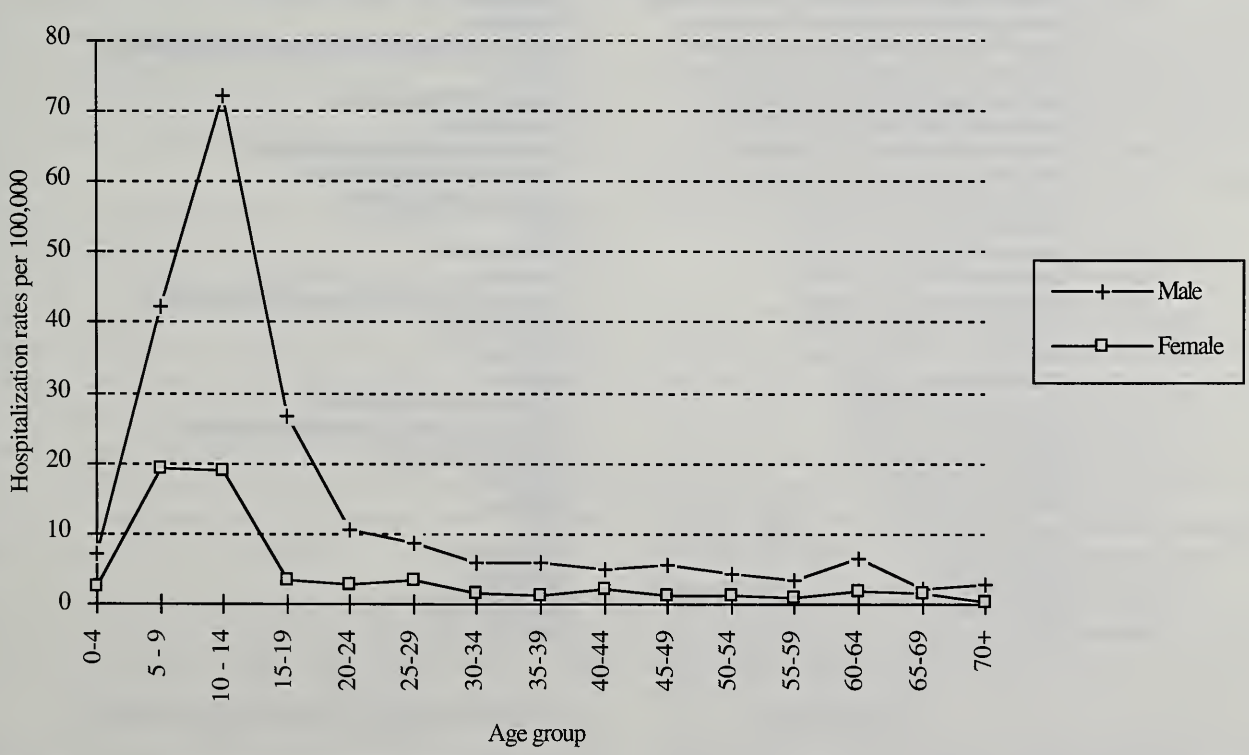
A. Mortality.—Between 1987-92, there were 49 deaths or 2,100 years of potential life lost attributable to bicycle injury among Connecticut residents. This results in an annual bicycle injury death rate of 0.25 per 100,000 persons (Table 1).

Age and sex.—Half (52%) of all bicyclists killed were less than 25 years of age. Males made up 85% of all deaths and females 15%. Bicycle injury death rates were highest among children, particularly 10- to 14-year-old males (2.4/100,000) (Fig. 1). For all ages combined, the death rate for males was five times the rate for females (0.5 *vs* 0.1/100,000).

Head injury.—Over two-thirds (69%) of all fatally injured bicyclists died of head trauma. The rest died of multiple blunt force injuries that did not specifically state head injury.

Motor vehicle involvement.—Of the 54 bicycle injury deaths, 75% (n=41) were the result of a collision with a motor vehicle and 25% (n=13) were nonmotor vehicle-related.

Figure 2.— Bicycle injury hospitalization rates by age and sex, Connecticut residents, 1987-91.



Place of residence.—Bicycle death rates were highest in Connecticut towns with a population density under 50,000 people (0.3/100,000) and lowest in towns with a population between 50 and 75,000 people (0.14/100,000). Further, small towns with a population less than 50,000 people account for approximately 70% of all bicycle deaths. Bicycle death rates in large urban centers with a population >100,000 and small cities with a population between 75-100,000 were 0.22 and 0.26/100,000 respectively.

Time trends.—Overall, there was a fourfold decrease (0.4 to 0.1/100,000) in death rates from bicycle related injury in Connecticut. The steady decline in death rates from 1987 to 1992 was interrupted only once in 1990 when the rate increased to 0.3/100,000 before returning to its downward slope.

B. Morbidity.—Every year, an average of 289 Connecticut residents are admitted to hospitals because of bicycle injuries, accounting for a total of nearly 1,500 hospital days at a total cost of $1.7 million dollars.

Age and sex.—The annual bicycle injury hospitalization rate was 8.8 per 100,000 persons. The highest hospitalization rates occurred among children and youth five to 19 years of age. Across all age groups, males demonstrated a higher hospitalization rate than females (Fig. 2). For 10- to 14-year-olds, the hospitalization rate among males (72/100,000) was nearly four times as great as the rate among females (19/100,000).

Injury Diagnosis.—Head injury was the most common discharge diagnosis accounting for 30% of all hospital discharges (Table 3). Other frequently occurring injuries requiring hospitalization were upper limb fractures (16%) and lower limb fractures (12.5%). Neck/trunk fractures occurred in 4.2% of patients.

Of all head injured patients (n=440), 48% were admitted to the hospital with a concussion, 29% with an nonfracture intracranial injury, and 23% with a skull fracture. The percentage of total injuries that were head injuries was highest among among children and youth <20 years of age compared to adults older than 20 years of age (35% *vs* 20%). Bicycle-related head injury hospitalization rates were highest for 10- to 14-year-old males (31/100,000).

Figure 3.—Bicycle injury hospitalization rates among persons five to 24 years of age; head injury *vs* other, top 25 Connecticut towns, 1987-91.

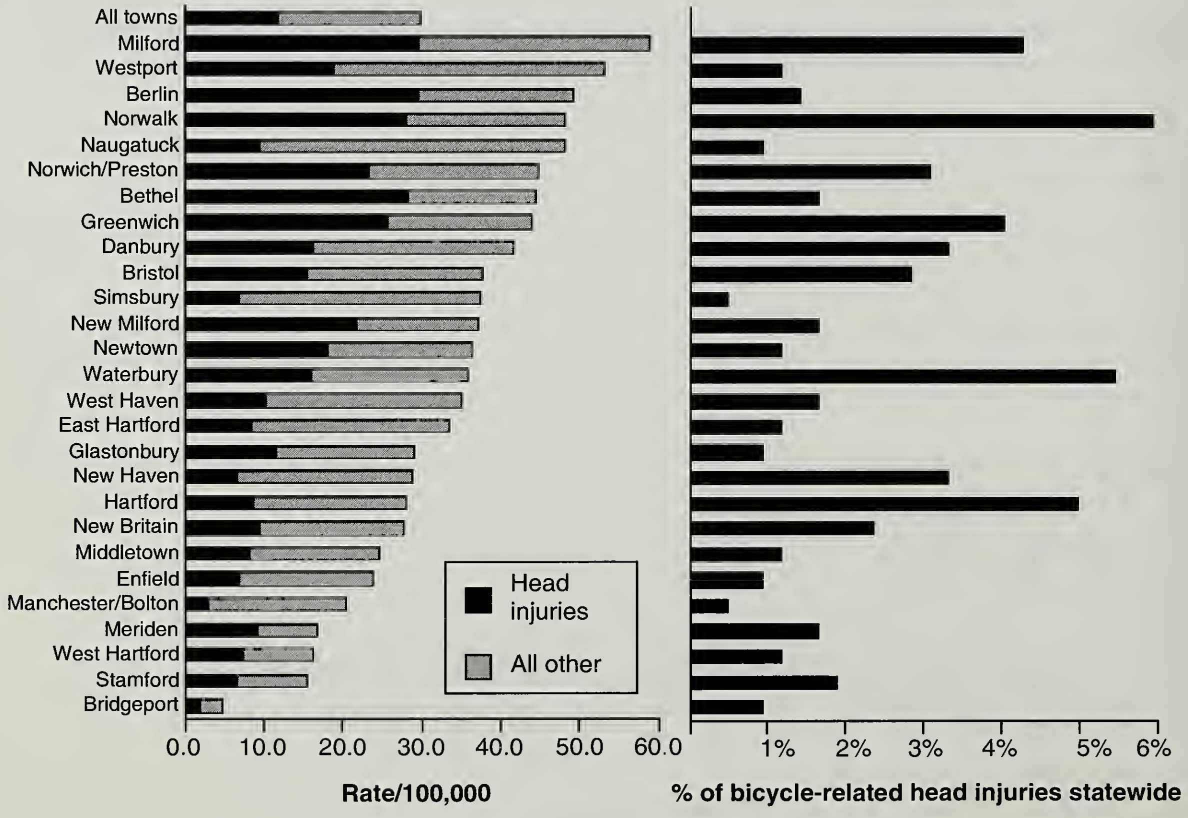
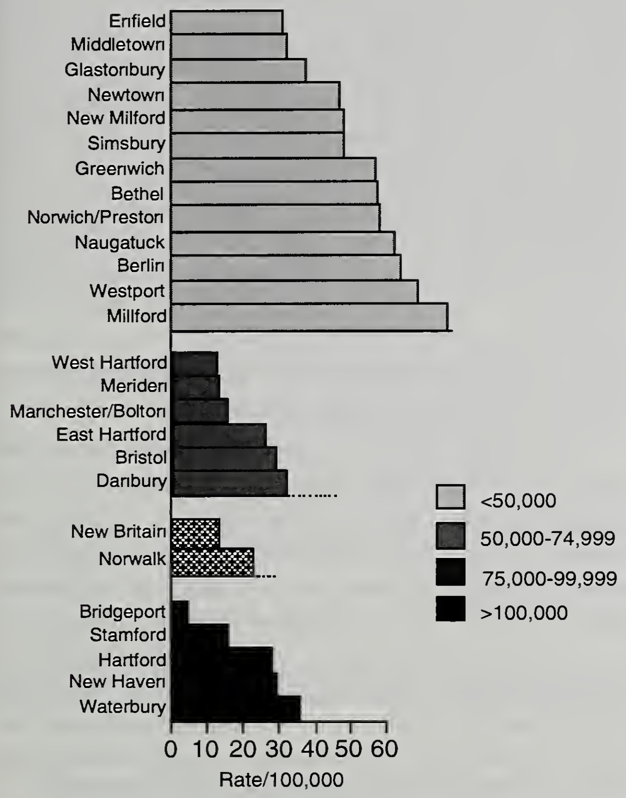


Figure 4.—Bicycle head injury hospitalization rate among persons five to 24, 1987-91; 25 towns with highest rates by population size.



Disposition.—Over 90% (1,330 of 1,445) of bicycle-related hospital admissions were discharged home, 1% (n=15) were transferred to another acute-care hospital, 1.5% (n=22) were discharged to a long-term care facility, 3% (n=47) to a home health-care agency, and 1% (18) expired.

Motor vehicle involvement.—One third of bicycle injury hospitalizations are motor vehicle related (470 of 1445) and two thirds nonmotor vehicle related (975 of 1445). For residents of all ages hospitalization rates are highest for nonmotor vehicle-related crashes. Among bicycle related-head injured patients five to 24 years of age, the mean length of stay was longer for motor vehicle-related *vs* nonmotor vehicle-related admissions (7.6 *vs* 2.2 days). Similarly, the average hospital charge was greater for motor vehicle-related *vs* nonmotor vehicle-related admissions ($11,736 *vs* $2,259).

Place of residence.—For all sizes, Connecticut towns, the rate of nonmotor vehicle-related hospitalizations was greater than for motor vehicle-related admissions. Rates for both nonmotor vehicle (8.3/100,000) and motor vehicle related (5.3/100,000) were highest in towns with a population between 75 to 100,000. The Connecticut towns with highest rates of bicycle-related head injuries and significant proportions of these injuries statewide include Milford, Norwalk, Waterbury, Hartford, and Greenwich, which together accounted for approximately 25% of bicycle-related head injuries, 1987-1991(Fig. 3).

Table 3.—Injury diagnosis in bicyclists admitted to Connecticut Hospitals, 1987-91

Injury	#	%
Head (fracture/internal injury)	440	30.4
Neck/trunk fracture	60	4.2
Facial fracture	55	3.8
Upper limb fracture	231	16.0
Femur fracture	91	6.3
Lower limb fracture	180	12.5
Dislocations	23	1.6
Sprain/strain	14	1.0
Internal injury	76	5.3
Eye injury	10	0.7
Open wound	125	8.7
Traumatic amputation	1	0.1
Contusion	46	3.2
Other	93	6.4
Total	**1,445**	**100.0**

Finally, the 25 towns with highest head injury hospitalization rates are shown in Fig. 4, grouped by size of town.

Time Trends.—In 1987, the bicycle-related hospitalization rate was 11.5/100,000; it dropped 30% in 1988 to 7.9/100,000 and thereafter has remained essentially unchanged until 1991.

Discussion

In Connecticut, bicycle injuries are an important cause of morbidity and mortality which disproportionately affects younger males, particularly school-aged children and early adolescents. The bicycle injury death rate observed among Connecticut residents (0.3/100,000) compares closely with the United States bicycle injury death rate of 0.4/100,000).[2] Our data are consistent with other studies in that most of the mortality and serious morbidity from bicycle-related injury are due to head trauma.

A review of emergency department data found 62% of bicycling deaths and 32% of bicycling injuries were from head trauma, with death rates highest among 10- to 14-year-old males, and injury rates highest among five- to 9-year-old males. Almost 90% of deaths following head injuries involved bicycles colliding with motor vehicles.[3] In Pittsburgh, all pediatric deaths and 69% of hospitalizations were due to head injuries. Further, for the one third of the children who suffered disabilities four months after the acute incident, most were due to head trauma.[6] A similar study in Philadelphia reported one third of all trauma to be head and neck related, but that these injuries resulted in almost half of the hospitalizations.[7]

Fortunately, the protective benefits of helmet use has been demonstrated. In a case-control study of head injured bicyclists in Seattle, Washington, bicyclists wearing helmets had an 85% reduction in their risk of head injury and an 88% reduction in their risk of brain injury.[8] Several other studies have demonstrated that increased use of helmets in a population over time is associated with decreases in bicycle-related head injuries.[9-11] In recognition of the effectiveness of helmets in preventing bicycle-related head injuries, the American Academy of Pediatrics recommends that "Pediatricians should inform parents and patients of the importance of wearing bicycle helmets and the dangers of riding without a helmet."[12]

In spite of the demonstrated protective benefits of bicycle helmets, their use until recently was extremely low. In 1985 Weiss found that fewer than 2% of school children in Tuscon, Arizona, were wearing helmets while riding bicycles[13] and few pediatricians and family physicians were encouraging them to wear helmets.[14] Even the majority of children admitted to hospitals for bicycle-related injuries still do not wear helmets after discharge.[15]

More recently, several strategies including educational campaigns, helmet discount programs, and legislation mandating helmet usage have been used to reduce bicycle-related head injury and promote bicycle safety and helmet use.[16] Over a three-year period (1986-88) in Seattle, a broad based educational campaign coupled with discounted helmets resulted in a helmet usage rate among school-aged children that increased from 5% to 16% compared with a rise of only 1% to 3% in a control community.[17,18] By 1992, helmet use among Seattle school children increased to 38%.[16] A program in Toronto combining bicycle safety education for school children, awareness for parents, and a discount helmet program tripled helmet usage in intervention sites compared to control sites; however, improved usage was not demonstrated among lower income families.[19] And in West Hartford, Connecticut, a community-based project modeled after the Seattle program increased bicycle helmet use among school children threefold from 5% to 16%.[20] This program has since been expanded to over 30 Connecticut towns in cooperation with the Connecticut Junior Women's League.

Another method to increase bicycle helmet usage is legislation. Led by the advocacy of the Connecticut Chapter of the American Academy of Pediatrics, the 1993 Connecticut Legislature passed the state's first bicycle helmet law mandating helmet use for children under 12 years of age. Elsewhere, a law mandating helmet usage by all riders in Victoria, Australia, successfully increased helmet usage to 70% to 90%. This was after a prolonged public education campaign had increased usage above 50% only among elementary students commuting to school.[9,10] A law requiring children to wear helmets in Howard County, Maryland, implemented with a campaign to educate children about the law, increased usage over tenfold, whereas an educational campaign in a control county only increased usage twofold, and usage decreased in a control county without any intervention.[21] The experience of Howard County and a similar intervention in suburban Cleveland communities demonstrate that programs combining legislation and education are more successful than either intervention alone.[22,23]

Unfortunately, even with successful programs, helmet usage by bicyclists in the United States is estimated at less than 10%,[3] far less than the 50% objective for the nation included in *Healthy People 2000.*[24] Among a group of school children with low rates of helmet usage, reasons given for not riding with a helmet centered around peer pressure against helmets, and helmets that were not stylish. Most of these children recognized that helmets could prevent head injury; however, few saw themselves at risk of injury. Many students actually respected those riders who wore helmets.[25] Among children with higher rates of helmet usage, the highest correlates of use were having peers who wore helmets, followed by siblings who wore helmets. Parents who consistently wore helmets, and a child's perception of risk of bicycle-related head injury were not predictive.[26] Discomfort is a frequent reason cited for not wearing helmets as well.[25] Many studies note lower rates of helmet usage among lower socioeconomic groups,[15,16,18] even when helmets are discounted or provided at no cost.[18] In spite of this, subsidizing helmets is estimated to be cost effective.[27]

In Connecticut, several recent initiatives hold promise of reducing bicycle-related injury. Connecticut SAFE KIDS, Connecticut Traumatic Brain Injury Association, and the state's Department of Public Health and Addiction services are providing community-based organizations with safety materials and access to low-cost helmets. Also, the Connecticut Greenways project is converting old railroad lines to pedestrian and bicycle paths, thus separating bicyclists from motor vehicles. Using the information presented in this paper, special efforts should be directed to Connecticut towns and cities who have high rates of bicycle-related head injuries.

In summary, bicycle-related head injuries are a major cause of mortality and long-term disability in Connecticut. Bicycle-related trauma disproportionately affects younger people, particularly school-aged children and early adolescents. Although bicycle helmets are shown to be very effective in preventing most of these injuries and deaths, and use appears to be increasing, they are not used by the majority of bicyclists. Safety programs that have successfully increased helmet usage have combined different strategies, particularly campaigns educating children and parents about helmet usage linked with legislation mandating their use. New programs building on past experience must better define barriers to helmet use, especially among socioeconomically disadvantaged riders, while trying newer injury control techniques to prevent bicycle-related injuries.

Acknowledgment

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Twenty Most Frequent DRG Groups Among Medicare Inpatients Age 65 or Older in Connecticut Hospitals, Fiscal Years 1991, 1992, and 1993

JOHN HENNEN, PH.D., HARLAN M. KRUMHOLZ, M.D.,
AND MARTHA J. RADFORD, M.D.

ABSTRACT—This report provides data on the frequency of inpatient admissions for the 20 most frequent DRG categories among Medicare inpatients age ≥65 years at Connecticut acute care hospitals during the three-year period FY1991 to FY1993. Frequency distributions of the numbers of discharges within these 20 DRG categories are provided, in aggregate and by gender and age subgroups. There were 199,680 discharges of elderly Medicare beneficiaries within the 20 most frequent DRG categories in the three-year study period, 55.7% of all Medicare discharges. Within this total, there was year-to-year stability in total numbers of discharges and in the distribution of DRGs. By gender, 43% of elderly Medicare patients discharged in the three year period were men; 57%, women. Forty-one percent, 41%, and 18% of the discharges occurred among beneficiary age groups 65 to 74 years, 75 to 84 years, and ≥ 85 years, respectively.

Introduction

THE prospect of health-care reform and the recognition of limitations in health-care resources have precipitated change in the current organization of health services in Connecticut. While the future of health-care reform is uncertain, decisions about the allocation of health-care resources will be aided by a clearer understanding of the current burden of various diseases in the population. Administrative data bases, generated for billing purposes, provide valuable information about the use of health-care services. Careful examination of these data can help direct our attention toward the conditions in our community which are responsible for consumption of a large proportion of hospital-based resources. While this source of data lacks many of the details that would be available through the thoughtful prospective collection of clinical data and the detailed measurement of apposite outcomes such as quality of life indicators, these administrative data can provide an overview of current care and a summary of certain outcomes by providing reliable information about such important subjects as the number of admissions, the age and gender of patients, rates of mortality and readmission, average hospital charges, and lengths of stay. In a series of brief reports we plan to use the Medicare administrative data base to inform the Connecticut medical community about health resource consumption and outcomes of the elderly population in our state.

In this first report of the series, we describe hospital services provided by Connecticut acute care hospitals to elderly Medicare beneficiaries over the past three fiscal years in terms of: (i) the most frequent DRG (Diagnosis Related Groups) categories of hospital admissions among elderly Medicare beneficiaries; (ii) frequencies of admission within these DRG categories by gender; and (iii) frequencies of admission with these DRG categories by age group (65-74 years, 75-84 years, and ≥ 85 years).

Methods

Data available on inpatient billing claims (UB-82) forms used for invoicing the Health Care Financing Administration (HCFA) for hospital services provided Medi-

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care beneficiaries were assembled for this report. Discharge records of Medicare beneficiaries were restricted to those with age at admission of 65 years or older. Data were available for the three-year period FY1991-FY1993 (1 October 1991 to 30 September 1993). With the exception of the "Cancer, All Types" category, records with similar DRGs, differing by the presence or absence of complications, were grouped together. For the cancer category, all DRGs which specifically name "neoplasms" or "malignancies" were aggregated together as the "Cancer, All Types" category.* The 20 DRG groups are listed in Table 1.

All records of discharges from Connecticut acute care hospitals during FY 1991, 1992, and 1993 with one of these DRG assignments make up the analytic data set. For patients who were transferred to another acute care facility within the state, both admissions (transferred from and transferred to) were included within the analytic data set provided that the latter discharge occurred within the three-year time frame of the data set.

Tabulations of the frequencies of occurrence of the 20 DRG groups were made for subgroups defined by age at admission (65 to 74 years, 75 to 84 years, ≥ 85 years), gender, and year of discharge (fiscal years 1991, 1992, and 1993).

Results

There were a total of 358,726 discharges of elderly Medicare patients at Connecticut acute care hospitals in the three fiscal years. The 20 most frequent DRGs represented 55.7% of this total (199,680).

Among the 199,680 discharge records in the three-year analytic data set, there were 121,964 different Medicare beneficiaries represented. As noted above, for transferred patients, both discharge records were included within the analytic data set (provided that the second discharge occurred within the three-year time frame of the study). There were 8,015 such transfers, representing 4.02% of all discharges.

Table 1—Twenty Most Frequent DRG Groups, Connecticut Hospitals, Fiscal Years 1991, 1992, and 1993.

	DRG Category
000	Cancer, All Types
014-015	Stroke, TIA
079-080	Respiratory Infections and Inflammations, with/without Complications
088-96-97	Chronic Obstructive Pulmonary Disease, Bronchitis and Asthma, with/without Complications
089-090	Simple Pneumonia and Pleurisy, with/without Complications
106-107	Coronary Bypass Procedures, with/without Cardiac Catheterization
112	Percutaneous Cardiovascular Procedures
121-22-23	Circulatory Disorders with Acute Myocardial Infarction with Cardiac Catheterization, with/without Complex Diagnosis
124-125	Circulatory Disorders (except AMI) with Cardiac Catheterization, with/without Complex Diagnosis
127	Heart Failure and Shock
138-139	Cardiac Arrhythmia and Conduction Disorders, with/without Complications
140,143	Angina Pectoris, Chest Pain
148-149	Major Small and Large Bowel Procedures, with/without Complications
174-175	GI Hemorrhage, with/without Complications
182-183	Esophagitis, Gastroenteritis, and Miscellaneous Digestive Disorders
209	Major Joint and Limb Reattachment Procedures of Lower Extremity
210-211	Hip and Femur Procedures except Major Joint Procedures, with/without Complications
296-297	Nutritional and Miscellaneous Metabolic Disorders
320-321	Kidney and Urinary Tract Infections, with/without Complications
478-479	Other Cardiovascular Procedures, with/without Complications

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*List of the DRG codes and associated diagnostic and procedure codes used to form the "Cancer, All Types" category is available on request.

Table 2.—Total Medicare Discharges, Twenty Most Frequent DRG Subgroups, Age ≥ 65 Years, Connecticut Hospitals. Fiscal Years 1991, 1992, and 1993.

	DRG Category		**Number**	**Percent**
1.	127	Heart Failure and Shock	20,893	10.46
2.	014-015	Stroke, TIA	16,247	8.14
3.	140,143	Angina Pectoris, Chest Pain	15,853	7.94
4.	000	Cancer, All Types	15,771	7.90
5.	089-090	Pneumonia, Pleurisy	14,637	7.33
6.	121-22-23	Acute Myocardial Infarction	11,876	5.95
7.	209	Major Joint/Limb Procedures	10,427	5.22
8.	138-139	Cardiac Arrhythmia, Conduction Disorders	10,286	5.15
9.	088-96-97	COPD, Bronchitis, Asthma	10,277	5.15
10.	124-125	Circulatory Disorders (except AMI)	9,831	4.92
11.	182-183	Esophagitis, Gastroenteritis	8,390	4.20
12.	174-175	GI Hemorrhage	8,089	4.05
13.	296-297	Metabolic, Nutritional Disorders	7,787	3.90
14.	148-149	Major Bowel Procedures	6,972	3.49
15.	210-211	Hip and Femur Procedures (except Joint Replacement)	6,621	3.32
16.	112	Percutaneous Cardiovascular Procedures	6,026	3.02
17.	106-107	Coronary Bypass Procedures	5,652	2.83
18.	478-479	Other Cardiovascular Procedures	5,024	2.52
19.	320-321	Kidney and Urinary Tract Infections	4,850	2.43
20.	079-080	Respiratory Infections and Inflammations	4,171	2.09
		Totals	**199,680**	**100.00**

Counts of the number of discharge records in each of the 20 most frequent DRG groups are indicated in Table 2. Total discharges by gender and age group for the three-year study period are indicated in Tables 3 and 4.

The discharge record counts for the 20 DRG categories for the three fiscal years separately were as follows:

Fiscal Year	Number of Discharges	Number of Medicare Beneficiaries
1991	63,913	47,952
1992	67,664	50,277
1993	68,103	50,373
All	199,680	121,964

The small variation in discharge record totals by fiscal year indicated above was found not to be affected by controlling for (small) gender and age group differences. Also, small year-to-year variation was found to hold among the several DRG categories, as well. None of the 20 DRG categories had year-to-year variance in total discharges greater than 1%.

As indicated in Tables 3 and 4, 57% of the discharge records were for female patients, and the three age groups (65-74 years, 75-84 years, and 85 years and over) made up 41%, 41%, and 18%, respectively, of the discharge records in the analytic data set.

Discussion

As noted above, there appears to be close year-to-year stability within the data set, in both numbers of discharges and numbers of different Medicare beneficiaries receiving this care. Cardiovascular disease is highly represented among admissions of elderly Medicare beneficiaries. Ten of the 20 high-frequency DRG categories are cardiovascular related DRGs. These 10 DRG categories comprise

Table 3. Total Medicare Discharges, Twenty Most Frequent DRG Subgroups, by Gender, Age ≥ 65 Years, Connecticut Hospitals. Fiscal Years 1991, 1992, and 1993.

	DRG Category		MALES		FEMALES	
			Number	Percent	Number	Percent
1.	127	Heart Failure/Shock	8,878	42.49	12,014	57.51
2.	014-015	Stroke, TIA	6,791	41.80	9,454	58.20
3.	140,143	Angina/Chest Pain	6,331	39.94	9,521	60.06
4.	000	Cancer, All Types	6,445	40.87	9,326	59.13
5.	089-090	Pneumonia, Pleurisy	6,919	47.27	7,718	52.73
6.	121-22-23	Acute Myocardial Infarction	5,807	48.90	6,069	51.10
7.	209	Major Joint/Limb Procedures	3,227	30.95	7,199	69.05
8.	138-139	Cardiac Arrhythmias	4,339	42.18	5,947	57.82
9.	088-96-97	COPD/Bronchitis/Asthma	4,103	39.93	6,173	60.07
10.	124-125	Circulatory Disorders	5,349	54.41	4,482	45.59
11.	182-183	Esophagitis/Gastroenteritis	2,773	33.06	5,616	66.94
12.	174-175	GI Hemorrhage	3,628	44.85	4,461	55.15
13.	296-297	Metabolic Disorders	2,804	36.01	4,983	63.99
14.	148-149	Major Bowel Procedures	2,907	41.70	4,064	58.30
15.	210-211	Hip/Femur Procedures	1,365	20.62	5,255	79.38
16.	112	PTCA	3,579	59.40	2,446	40.60
17.	106-107	CABG	3,741	66.19	1,911	33.81
18.	478-479	Other Cardiovascular Procedures	2,541	50.59	2,482	49.41
19.	320-321	Kidney Infections, UTI	1,833	37.79	3,017	62.21
20.	079-080	Respiratory Infections	2,314	55.48	1,857	44.52
		Totals	**85,674**	**42.97**	**113,995**	**57.03**

55% of all the discharge records in the analytic data set and 30.6% of all elderly Medicare discharges in the three-year period.

The set of the 20 most frequent DRG groups include the large general "Cancer, All Types" DRG category. It should be recognized that this enumeration omits some patients with cancer diagnoses because their DRG assignment may place them within a certain procedure category. For example, DRG category 148-149 (Major Bowel Procedures) contains many cancer patients. Of the 6,972 discharge records within this category, 50.3% (3,507) have a principal diagnosis of cancer of one type or another. These patients are categorized within the procedure category (148-149) rather than within a cancer category because of the rules of DRG assignment.

Similarly, the other procedure categories contain patients with many different diagnoses. For example, DRG category 106-107, coronary artery bypass graft (CABG), contains 731 patients (12.9%) with acute myocardial infarction as their principal diagnosis and 80 (1.4%) with congestive heart failure as their principal diagnosis.

There are notable gender differences in the frequencies of DRG categories. Males have disproportionately higher frequencies of two cardiovascular procedures, DRG 106-107 (CABG, 66.2%), and DRG 112 PTCA, 59.4%). As noted in Table 2, the overall male-female distribution was 43%-57%. Females have disproportionately higher frequencies for DRG 210-211, hip and femur procedures except major limb procedures (79.4%), and for DRG category 209, major joint/limb procedures (69%).

Age group differences in frequencies of the 20 DRG categories are reported in Table 4. Within the subgroup of beneficiaries age ≥ 85 years, DRG 210-211 (hip and femur procedures except major limb procedures, 41.47%) was represented much more frequently than is the age group in the data set as a whole (18.34%); while DRG categories

Table 4.—Total Medicare Discharges, Twenty Most Frequent DRG Subgroups, by Age Group. Age ≥ 65 Years, Connecticut Hospitals. Fiscal Years 1991, 1992, and 1993.

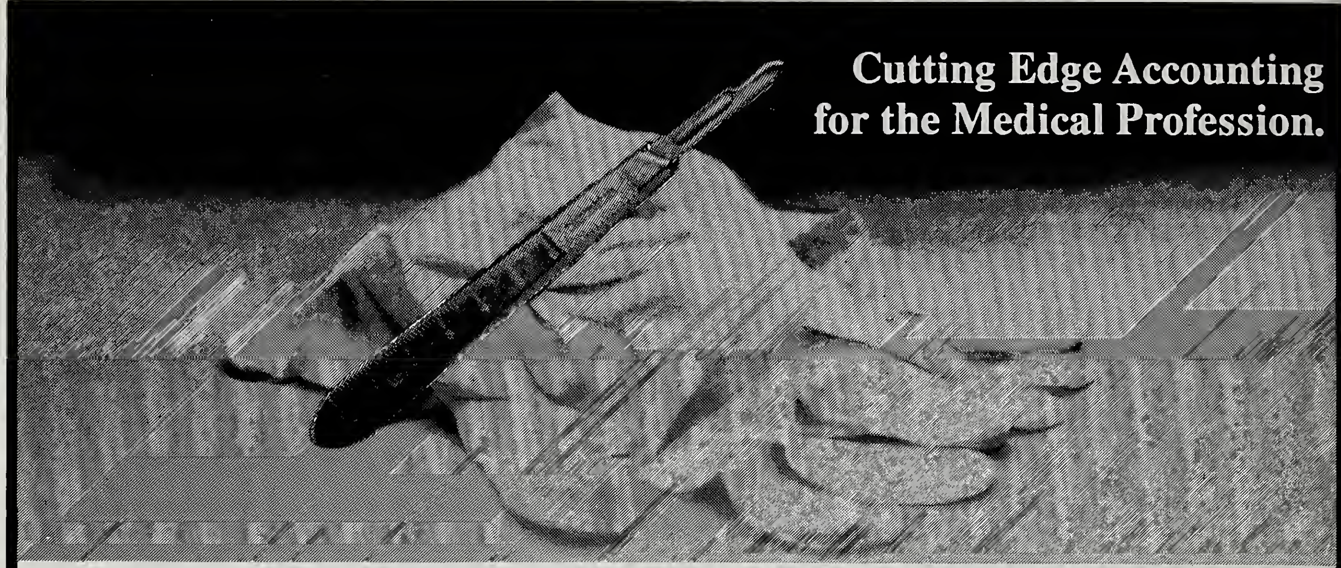
			AGE 65-74		AGE 75-84		AGE ≥85	
	DRG Category		**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
1.	127	CHF	6,392	30.59	9,243	44.24	5,258	25.17
2.	014-015	Stroke/TIA	5,281	32.50	7,189	44.25	3,777	23.25
3.	140,143	Angina/Chest Pain	7,203	45.44	6,553	41.34	2,097	13.23
4.	000	Cancer, All Types	8,455	53.61	5,792	36.73	1,524	10.71
5.	089-090	Pneumonia/Pleurisy	4,413	30.15	6,144	41.98	4,080	27.87
6.	121-22-23	AMI	4,735	39.87	5,028	42.34	2,113	17.79
7.	209	Major Joint/Limb Procedures	4,601	44.13	4,284	41.09	1,542	14.79
8.	138-139	Arrhythmias	4,218	41.01	4,296	41.77	1,772	17.23
9.	088-96-97	COPD/Bronchitis/Asthma	4,871	47.40	4,153	40.41	1,253	12.19
10.	124-125	Circulatory Diseases	6,171	62.77	3,406	34.65	254	2.58
11.	182-183	Gastroenteritis	3,452	41.14	3,426	40.83	1,512	18.02
12.	174-175	GI Hemorrhage	2,676	33.08	3,467	42.86	1,946	24.06
13.	296-297	Metabolic Diseases	2,402	30.85	3,171	40.72	2,214	28.43
14.	148-149	Major Bowel Procedures	3,101	44.48	2,838	40.71	1,033	14.82
15.	210-211	Hip/Femur Procedures	1,208	18.25	2,667	40.29	2,746	41.47
16.	112	PTCA	3,925	65.14	1,924	31.93	177	2.94
17.	106-107	CABG	3,680	65.11	1,879	33.24	93	1.64
18.	478-479	Other Cardiac Procedures	2,579	51.34	1,924	38.30	521	10.37
19.	320-321	Kidney Infections	1,367	28.19	2,073	42.74	1,410	29.07
20.	079-080	Respiratory Diseases	1,061	25.44	1,807	43.32	1,303	31.24
		Totals	**81,791**	**40.96**	**81,264**	**40.70**	**3,625**	**18.34**

106-107 (coronary bypass procedures, 1.64%), 112 (percutaneous cardiovascular procedures, 2.94%), and 124-125 (circulatory disorders except AMI, 2.58%) appeared disproportionately less frequently within this oldest age group.

Summary

The 20 most frequent DRG group assignments among Medicare recipients age 65 and older discharged from an acute care hospital in Connecticut represent 55.7% of all discharges in this population. Cardiovascular diseases comprise the largest disease category affecting Medicare recipients in our state.

Future reports in this series will provide information about mortality rates, readmission rates, and related data based on the present analytic dataset.



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FOREWORD—The third consecutive Annual Pediatric Resident Research Conference was held at the Hartford Medical Society building in Hartford on 7 June 1994. This year's conference focused on clinical and basic science issues surrounding care for the sick neonate.

The pediatric graduate medical education program includes a program for neonatal intensive care. The division and regional program are under the direction of Dr. Jonelle Rowe, Chief of Neonatal-Perinatal Medicine. The program provides level three care in nurseries at John Dempsey Hospital, Hartford Hospital, and St. Francis Hospital and Medical Center. The faculty of this division is responsible for the education of pediatric residents and neonatal intensive care fellows in the clinical care of sick newborns. In addition, they provide the guidance, stimulation, and resources for research done in this important area of pediatrics. The broad range and high quality of research and collaboration ongoing in the division are reflected in this year's presentations.

Dr. Bhandari presented his clinical work on nosocomial sepsis associated with vascular catheters, done under the guidance of Drs. Eisenfeld and Rowe; and also the results of his research on actin depolymerization in type II cells that he performed with Dr. Kresch. Dr. Ramesh, also sponsored by Dr. Kresch, reported on his work on calcium-release channels in fetal and adult rats; while Dr. Hussain has addressed the important clinical issue of mortality and morbidity for very immature neonates, done in collaboration with Drs. Herson and Rowe.

Infants with Vascular Catheters and Nosocomial Sepsis in Two Level-3 Neonatal Intensive Care Units: A Retrospective Analysis

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This study included 1,887 infants with vascular catheters [umbilical artery (UA), umbilical venous (UV), central venous/Broviac® (CV), percutaneous (PQ), peripheral artery (PA)] to identify risk factors for nosocomial sepsis, defined as a positive cerebrospinal fluid or blood culture after the third postnatal day. One hundred ninety-six (10.4%) developed sepsis. Infected infants were significantly more likely to have multiple catheters (2.3 *vs* 1.3), lower birth weights (1.2 *vs* 2.1 kg), be of younger gestational age (28 *vs* 33 weeks), have lower median 1 and 5 min Apgar scores (4 and 7 *vs* 6 and 8) and be nonwhite. Gender incidence was equal. The most common organism was *Staphylococcus (non-aureus)*. Fungal infection was increased at Hartford Hospital compared to John Dempsey Hospital (15.9 *vs* 3.5%). When a single catheter was in place, the incidence of infection was 3-4% for UA or UV

and 9-11% for CV or PQ. To define an association between the duration of catheter use and the infection rate, the incidence of positive blood cultures from insertion until seven days after removal was analyzed over a two-year period at the John Dempsey Hospital.

There was an increase in infection with UA or UV use beyond three days. No differences were seen in the incidence of infection over time with CV or PQ; this probably reflects the small numbers available for analysis. Data regarding catheter type and duration of use has important implications for care in the NICU.

Catheter	1-3 days	4-7 days	8-14 days	15 or > days
UA	1/172 (0.6%)	8/144 (5.6%)*	5/49 (10.2%)	3/12 (25%)
UV	0/102 (0%)	6/45 (13.3%) +	3/36 (8.3%)	0/4 (0%)
CV	0/4 (0%)	1/5 (20%)	2/21 (9.5%)	12/55 (21.8%)
PQ	0/11 (0%)	1/13 (7.7%)	1/23 (4.4%)	3/26 (11.5%)
PA	1/24 (4.2%)	0/21 (0%)	1/8 (12.5%)	0/2 (0%)

*$P<0.011$ (*vs* 1-3 d), + $P<0.001$ (*vs* 1-3 d), Chi-square

Characterization of Calcium Release Channel in Fetal and Adult Rat Hearts

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In this study we characterized properties of calcium (Ca) release channel in fetal (21-22 days in gestation) and adult (five and 12 weeks old) Sprague-Dawley rat hearts by tritiated ryanodine (a plant alkaloid which specifically binds to calcium release channel) binding and ryanodine-sensitive Ca uptake using whole homogenates. The characteristics of Ca release channel were similar between left and right ventricles in both fetal and adult rats. Although many features of the Ca release channel were similar between fetal and adult hearts, two functional assays revealed remarkable differences. The comparable properties include: 1) the Ca sensitivity and cooperativity of ryanodine binding to Ca release channel, measured as Ca concentration at half-maximal activation and Hill coefficient and 2) caffeine sensitivity, measured as caffeine-induced increase in ryanodine binding to Ca release channel. The distinguishing properties are: 1) the lower Ca release channel density and 2) the lower ryanodine-activated oxalate-supported Ca uptake in fetal heart than in adult heart. Our results are consistent with the hypothesis that the major functional changes occurring during the postnatal growth of the rat heart are associated with increased expression of Ca release channel. This would indicate that the developing heart has an immature biochemical response system that may well require special pharmacologic considerations.

This study was supported in part by NIH (HL-33026) and the American Heart Association. D.H.K. is an established investigator of the American Heart Association.

Mortality and Morbidity of 22- to 27-Week Gestational Age Infants Born at High-Risk Perinatal Units in Connecticut in the Surfactant Era

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Crucial perinatal management decisions involving 22- to 27-week gestational age (GA) infants should be based on an understanding of fetal and neonatal prognosis. Because of treatment advances in perinatal medicine it is important that current outcome data be made available to parents and health-care providers. Regional data from three high-risk perinatal centers, John Dempsey Hospital and Hartford Hosital from 1 August 1989 to 30 July 1993 and Yale New Haven Hospital from 1 January 1991 to 30 July 1993), which together represent about 90% of the 22- to 27-week GA deliveries in Connecticut, were collected. Surfactant was in use at all three units during this time. The outcome of all inborn infants 22- to 27-week GA (by best obstetric estimate) who received intrapartum care and who were actively resuscitated in the DR was reviewed. Adverse outcome (AO) was defined as death or significant nonrespiratory morbidity (intraventricular hemorrhage grades 3-4 and retinopathy of prematurity stages 3-5). Data on survival to discharge, respiratory morbidity (bronchopulmonary dysplasia), non respiratory morbidity and non-AO survivors are presented.

Comparing AO and non-AO groups, GA, birth weight and Apgar at one and five minutes were significantly different, but ethnicity, gender, and mode of delivery were not. In spite of surfactant and aggressive perinatal management, there were no survivors at 22-week GA. Non-AO survival was poor at 23-week GA and it was only at ≥25-week GA that there was ≥50% survival without AO at discharge.

GA (wk)	Wt (g) M±SD	Inborn	Survivors	BPD	IVH 3-4	ROP3-5	non-AO
22	501±113	8	0 (0%)	\	\	\	0 (0%)
23	580±079	37	10 (27%)	9 (90%)	1 (10%)	3 (33%)	6 (16%)
24	632±124	81	45 (56%)	42 (93%)	4 (9%)	12 27%)	31 (38%)
25	733±121	91	58 (64%)	53 (91%)	4 (7%)	10 (17%)	45 (50%)
26	849±145	86	75 (87%)	69 (92%)	5 (7%)	8 (11%)	63 (73%)
27	994±162	102	89 (87%)	57 (64%)	7 (8%)	4 (4%)	79 (78%)
TOTAL	[N (%)]	405	277 (68%)	230 (57%)	21 (5%)	37 (9%)	224 (55%)

Actin Depolymerization is Developmentally Regulated in Type II Cells Exposed to Terbutaline

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The alveolar type II cell ($T_{II}C$) synthesizes and secretes pulmonary surfactant. Terbutaline enhances surfactant release by $T_{II}C$. The actin microfilament network regulates the secretory activity of pancreatic acinar cells. Our hypothesis is that the actin network regulates secretion in $T_{II}C$. To examine the developmental regulation of the changes in actin subfractions, cultures of adult and 19 day fetal rat $T_{II}C$ were incubated with or without 10 µM terbutaline for one to 60 minutes. The actin cytoskeleton was extracted using buffer with triton and further processed by high speed centrifugation to obtain the G-actin and F-actin subfractions. Specified volumes of each subfraction were analyzed by Western blotting, visualized by a color reaction, and quantified by densitometry. Maximal effects on the proportion of each fraction in each group are shown in the table below (data represent mean 6 sem).

The decrease in the stable pool of F-actin along with the increase in the G-actin fraction indicates that depolymerization of F-actin occurs within one min in adult $T_{II}C$ exposed to terbutaline which returns to control levels by 60 min. In contrast, this effect progresses to a maximal response at 60 min in fetal cells. These changes in the actin microfilament network may regulate transport and exocytosis of lamellar bodies in $T_{II}C$. We speculate that there is an early secretory mechanism which involves depolymerization of actin microfilaments and a late actin-independent secretory mechanism present in adult $T_{II}C$. The timing of the response of the actin dependent pathway is developmentally regulated. This may explain the developmental differences in secretion of surfactant that we have previously shown.

	Adult (n=3): 1 min.		**Fetal (n=3): 60 min.**	
	Control	*Terbutaline*	*Control*	*Terb*
F-Actin (labile)	6.5 6 1.6%	3.2 6 1.4%	0.7 6 0.5%	3.2 6 2.7%
G-Actin	6.5 6 3.6%	33.9 6 2.4%*	7.5 6 1.9%	27.5 6 9.5%
F-Actin (stable)	87.16 5.1%	62.9 6 3.8%†	91.8 6 1.7%	69.3 i 9.4%

*P< 0.003, †P< 0.02.

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RBRVS 2.0:
Toward a Special Theory of Resource-Based Relativity

ALFRED EINSTEIN, M.D.

Introduction

THE resource-based, relative value scale (RBRVS) came into being over a half decade ago. Since that time, the Health Care Financing Administration has adopted this system in formulating reimbursement rates under Medicare. Moreover, there is now a trend for private health-care insurance companies to adopt a similar scheme in setting their own reimbursements for physicians. Although specific revisions have occurred, a systematic analysis and reappraisal of the RBRVS has not, to my knowledge, been undertaken. What follows is a reassessment of this vitally important scale as it seems to me that a six-year hiatus is a rather long period of time to elapse without a major revision to have occurred, especially in this day and age of major health-care reform.

The General Theory of Resource-Based Relativity

The impetus to develop a system of resource-based relative value grew out of a concern that the growth rate in expenditures of physicians' services was observed to be far outpacing the growth rate of the general economy. In 1986 Congress created a committee, *The Physician Payment Review Commission,* whose goal was to reform the system under which Medicare reimbursed physicians for their services. Wanting to make the new fee structure inherently reasonable, the commission wrote: "A resource cost basis would reflect estimates of what relative values would be under a hypothetical market that functions perfectly. Under such a market, competition drives relative prices to reflect the relative costs of efficient producers."[1] In their now well-known study, William Hsiao and his associates in the Department of Health Policy and Management at the Harvard University School of Public Health diligently investigated what physicians consider to be the factors that constitute their work input and resource costs and then developed methods of data collection in an attempt to measure these various components. Critically important to this strategy was the ability to define and quantify the resource costs of physicians' services with reliability and validity.

Although the exact derivation of their formula in the format of a logical proof was never provided, it was felt that the resource-based relative value (RBRV) of a given medical service could be equated to the product of three variables:

Equation (1)

$$\text{RBRV} = (\text{TW})(1 + \text{RPC})(1 + \text{AST})$$

where TW is the total work input by the physician and encompasses *time* spent before, during, and after service and the *intensity* with which that time is spent, RPC is an index of relative specialty *practice costs,* and AST is an index of amortized value for the *opportunity cost* of specialized training and represents the income forgone when physicians pursue additional years of specialty training.[2]

Conceding that intensity of work is difficult to define and measure, the investigators approached the establishment of some objective yardstick by which to quantify this variable by interviewing 20 physicians. They concluded that five variables constitute the intensity of work: (1)

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mental effort; (2) knowledge, judgment, and diagnostic acumen; (3) technical skill; (4) physical effort; and (5) stress. They also noted that the patient's condition and the severity of illness are the causes that determine the level of work required by a physician. Therefore, by relating the *complexity* of the case, the *seriousness* of the illness, the *uncertainty* regarding diagnosis and treatment, and the *concern* over possible iatrogenic harm each to the five variables that comprise the physician's work, they were able to derive dimensions of physician work input. These dimensions were ultimately postulated as (1) time, (2) mental effort and judgment, (3) technical skill and physical effort, and (4) stress. Because (2), (3), and (4) are almost impossible to measure objectively, these social scientists had to measure them by relying on subjective judgments of physician respondents and were advised by survey experts to limit the duration of the survey to 30 minutes.[3]

After analysis of the survey data, a general functional relationship was offered, again as a postulate and without the benefit of a formal proof, which equated work to the product of the four variables previously derived:

Equation (2)

$$W = A \times t^{\beta} \times M^{\tau} \times S^{\varphi} \times R^{\delta}$$

where W indicates work; A is a constant; t is time; M, mental effort; S, technical skill; and R, stress; and where β, τ, φ, and δ give "the quantitative weights of each dimension and predict the percent change in the level of work produced by an X percent change in ratings of dimensions."[4]

It is beyond the scope of this article to further detail the methodology invoked to develop the RBRVS but additional information can be found in the *Final Report to the Health Care Financing Administration,* September 1988.[5] Suffice it to say, many more variables were defined to indicate elements such as pre-service or post-service work and time (Wp, Tp), rate of work per unit time (W/T), intraservice work (Wi), gross revenues (GR), net revenue (NR), practice costs (PC), mark-up factor for practice costs (PCF), and factors to convert total work to monetary terms for a specialty (X). These were then mathematically related. Using *Current Procedural Terminology* (CPT-4), the investigators were able then to calculate total Medicare payments for each service (TMPC).

The Special Theory of Resource-Based Relatively

This original formulation of the resource-based relative value scale might best be termed *the general theory of resource-based relativity* wherein, by substituting W of equation (2) for TW of equation (1), the resource-based relative value (RBRV) of a given medical service can be given as:

Equation (3)

$$RBRV = (A \times t^{\beta} \times M^{\tau} \times S^{\varphi} \times R^{\delta})(1+RPC)(1+AST)$$

It is evident to the practicing physician, however, that several critically important variables which clearly constitute essential elements in the work of physicians and bear too on the practice and opportunity costs were not specifically addressed and incorporated into the original resource-based relative value scale. What I propose to develop herein, by acknowledging these variables and specifically incorporating them into the system of equations already derived, is what might best be termed *the special theory of resource-based relativity.*

It has always been my experience that viable and worthwhile solutions to difficult problems are best developed by those individuals who not only possess the necessary amounts of creativity, insight, and pragmatic intelligence but also are intimately involved, usually on an ongoing and perhaps daily basis, in the substantive issues that comprise those problems. Accordingly, a team of physicians who meet these criteria were assigned to undertake a thorough analysis of what it means to be a physician and then asked to relate this specific content to the rather general terms symbolized in equation (3), such as stress, time, mental effort, and practice costs. Based on the data so obtained, they were able to derive several variables that can be proved in a rigorous and objective manner to be fundamental features of physicians' work. These variables, once identified, can be specifically indicated in the general theory and thereby related to the relative value of physicians' services.

On-Call Schedule

One aspect of a physician's work which, although by no means unique to medicine is certainly fundamental to it, is that a medical practice must be serviced continuously. This characteristic is symbolized by what is known in medical parlance as the "on-call schedule." Yet no where in the RBRVS is the on-call schedule of physicians specifically incorporated as a variable. Indeed, this work is not really acknowledged as a service at all by Medicare, although its beneficiaries certainly see it as such. To indicate the work of being on-call we must invoke a new construct, called potential work (W_{pot}). Potential work can at any time become actualized, but its actualization is dependent solely on the capricious nature of disease itself and the personality of the patient who may (or may not) harbor its symptoms. The on-call schedule also involves a notion of time not specifically addressed in the general theory of RBRV, a notion of time that can be indicated by a similar concept called potential time (T_{pot}). While on-call a physician may make use of time as if it were free, but must organize the time in such a way that, at any given moment, it can be actualized toward work. That is, the physician on call must organize his or her time in such a manner so that he or she is continuously available, sometimes immediately, to be working if called.

With regard to the on-call schedule, there are three important variables: (1) the frequency of call (f_{oc});(2) the probability, when on call, that one will be asked to work (P_{wrk}); and (3) if asked to work, the nature of that work, as defined by the dimensions of work derived in the general theory (W). Physicians' call schedules vary considerably. Some may be on-call every night and every weekend, others may be on once a week or less. When on-call, some may rarely get even a phone call, others may get tens or hundreds of phone calls but never have to go into the hospital, and others may spend their entire time in the hospital, The work of being on-call (W_{oc}), then, is a function of potential work per unit of potential time, and is proportional to the frequency of call, the probability of actualizing potential work, and the intensity and time demands of that work once actualized (W_{act}):

Equation (4)

$$W_{oc} = (W_{pot/}T_{pot}) = (P_{wrk})(W_{act})(f_{oc})$$

Measurement of these variables will need to be specialty-specific and practice-specific but this should not be difficult given the fact that the government is positioning itself to gather huge amounts of information about the medical practice of individual physicians in the future as we move toward a national health-care program.

Telecommunications

A related but separate issue and, again, one not specifically addressed in the general theory of resource-based relativity is how the field of telecommunications involves the physician both during the normal working day and also while on-call. It is a well established fact that *present norms governing patient behavior allow attempted contact with the physician for any reason at any given time.* Through the use of the telephone and via the office staff, answering service, and beeper, patients can and do make attempts to reach their physicians whenever the need arises. Almost any physician can offer anecdotal experiences ranging from phone calls at 11 P.M. from a son whose mother is hospitalized for the purpose of discussing how Mom is doing to the Sunday 9 A.M. phone call informing the doctor that a patient has just become cognizant of the fact that he finished his supply of his medication and needs a prescription called in. One might receive a call at 2 A.M. from the local hospital stating that there is a patient that needs to be seen immediately or from a patient describing an ill-defined, total body tingling that has been going on intermittently for the past several days. Yet the general theory of resource-based relativity fails to acknowledge this aspect of physicians' work in its system of equations. Indeed, once again, it is not really defined as a service at all either by Medicare or on the RBRV scale. Nor is it considered pre- or post-service work, but certainly it is associated with time, mental effort, judgment, skill, and last but not least, stress.

Therefore we must introduce another variable which indicates work related solely to telecommunications, W_{tc}, which in turn is a function of the probability of the telecommunication (P_{tc}) and the intensity (I_{tc}) and time commitment (T_{tc}) such work entails when it occurs:

Equation (5)

$$W_{tc} = (P_{tc})(I_{tc})(T_{tc})$$

The True Art of Medicine

When one constructs a complex logical edifice such as the RBRVS, the assumptions which dictate the various relations between the vast array of elements which comprise it form the foundation upon which the entire structure rests. If even one of those assumptions is found to be erroneous, the whole system falters and may collapse, transforming a seemingly coherent and rational scheme into varying shades of nonsense.

An explicit assumption in the original RBRVS is that a patient's condition and the severity of illness are the causes that determine the level of work required by a physician. Any physician who engages in the practice of clinical medicine on a regular basis, however, would realize that this hypothesis, while appearing quite reasonable to the uninitiated, misses the mark in characterizing the causes that really determine the level of work required by a physician.

A physician's primary function is to elucidate the nature of the disease process a patient is experiencing, classify it within some diagnostic scheme, and then plan an appropriate treatment strategy. The work involved in this process is, to some extent, dependent on the patient's condition and severity of illness, but these are by no means the primary determinants. The physician also has some responsibility to aid the patient in dealing with the whole process of having a disease that requires evaluation and management.

Typically, the process begins with the physician extracting from the patient a history of the illness. This extraction may be easy, particularly from an intelligent, articulate patient who has been attentive to the evolving signs and symptoms as they occurred and approaches the physician-doctor relationship with enthusiasm and interest. It can be an involved and laborious process, however, even for the most benign and simple disease, if the patient has been unable to recognize or simply uninterested in the features of his disease as they occurred, or is unable to recall them if recognized at one point in time, or happens to be inarticulate, speak a foreign language, or harbors a tendency toward monosyllabic responses. Indeed, for this reason, the stress of the surgeon involved in a complex surgical procedure may pale in comparison to the stress of the primary-care physician taking a history on a patient who suffers from even a simple disorder. The surgeon may find it downright stimulating to spend hours engaged in a technically-demanding task, amongst coworkers gathered around assisting and conversing, and under the controlled ambiance of the operating room where the patient is frequently rendered silent, either with an endotracheal tube in place and unable to talk or placed in such a compromising position that he or she has no interest in talking. On the other hand, the primary-care physician may experience progressively rising levels of tension (stress) trying to piece together a coherent history from a patient whose memory may fail him when it comes to citing details of his illness as they evolved, words may fail him when it comes to describing the features he does remember, and the doctor is left with a record devoid of any semblance of pattern and form that might be used to render a diagnosis. Moreover, if the patient is new to the physician, as is occurring more and more often as patients switch from one physician to another with changes in their employment and/or health insurance, the physician must also piece together a record of the patient's past medical history. This leads to another element of work for the physician—gathering and reviewing old records.

The process of gathering and reviewing old records can be time-consuming and tedious. It may involve multiple phone calls to hospitals, emergency rooms, other physicians' offices, specific departments within a hospital, and any number of other facilities which function to provide health care. It may involve obtaining consent from the patient to gather the necessary information, transmission of such forms by mail or electronically, and the emotional stress involved in anticipating and expecting receipt of the requested forms. However, gathering such information is essential if appropriate treatment is to be rendered.

The physician must also examine the patient. The thoroughness and detail of this examination can vary substantially depending on the nature of the disease and specialty of the physician. For example, dermatologists in general perform a very different kind of examination from that performed by internists. And orthopedic surgeons approach the patient very differently from ophthalmologists. So too the patient presenting with signs and symptoms of the common cold is examined in a very different manner from the patient who has been involved in a high-speed motor-vehicle accident.

Finally, the physician must review the results of the relevant diagnostic tests, which frequently involves making a trip to review the hard data personally.

Once the history has been obtained and examination completed, the physician must explain to the patient what he thinks is going on and then frequently finds himself in a position of either ordering more tests to aid in establishing a diagnosis or instituting treatment. In either case the physician finds himself engaged in work that may have little to do with the complexity of the patient's illness or the seriousness of his condition. It has only to do with the task of communicating to another human being information about his health, the probabilities of various health-related conditions existing, occurring, or resolving, the risks and benefits associated with various courses of action involving tests or treatments, describing the various alternatives available, and addressing the concerns, questions, and usual anxieties the patient has about his health. It may involve explaining the kinds of tests available or the implications of the results of those tests once done. Some patients, who objectively are suffering from minor ailments and have an excellent prognosis, may be overly concerned and anxious and take up an enormous amount of a physician's time and energy. Others, who may be gravely ill and perhaps near death with a serious and complex illness, might harbor a more constructive and accepting attitude toward their disease and therefore take up surprisingly little of a physician's time and energy.

The work of a physician also frequently involves telephone calls to family members of sick patients to inform them of and keep them updated as to the condition and evolutionary aspects of the disease as a result of evaluation and treatment. The physician frequently finds himself involved in activities such as giving instructions to patients regarding the use of prescription drugs and their side effects, appropriate limitations with regard to pretest or posttest behavior, or simply trying to explain to an individual why modern medicine has no answer or treatment for the particular ailment for which the patient seeks attention.

Although the level-of-care system embodied in the *Evaluation and Management* section of *Current Procedural Terminology*[6] attempts to codify these activities in general terms, in order to represent work more specifically in the schema of RBRVS we must create variables to indicate these types of work each of which, in keeping with the pattern already established, involve time and an intensity of service.

Therefore, let

W_{HP} = the work of obtaining a history

W_{PE} = the work of performing a physical examination

W_{MR} = the work of obtaining and reviewing a medical record

W_{TST} = the work performed in evaluating the results of diagnostic tests

W_{CSL} = the work of counseling the patient

The true art of medicine is an integral of these specific types of work and can be expressed as follows:

Equation (6)

$$\int W_{ART} = \int (W_{HP} + W_{PE} + W_{MR} + W_{TST} + W_{CSL})$$

The Hassle Factor

The face of medicine has changed a great deal in the past 10 years and continues to change at a rapid pace. Physicians are inundated daily with form after form from government agencies, visiting nurses, social service departments, third-party payers, hospital management, medical records departments, lawyers, and a host of others who request information, input, and review. Lawyers want impairment ratings for assessment of disability, dentists will not perform their work without a note from the patient's physician clarifying the role of antibiotics, insurance companies want information about the patient's condition and current treatment. Special reports must be filed. Multiple questions must be answered. The same form must be filled out again and again, on a periodic basis, sometimes with the admonishment that it is a crime to make any false statement, as if the physician is prone to lie unless specifically reminded that such action is considered inappropriate. Copies must be made for attorneys, employers, case workers, and the like. Calls come in for the physician, wanting answers. This inordinate time input and cost input by the physician must be factored into the reimbursement equation.

Therefore, we must incorporate a variable HF, the hassle factor, to define this element of work. It needs to be specific for the origin of the hassle. For instance, HF_{ins} would represent the hassles, as a function of time and intensity, of dealing with a particular insurance company. HF_{atty} can be invoked to quantitate the hassles associated with a particular legal firm. One can readily envision an equilibrium evolving. Insurance companies, for example, might continue to create obstacle after obstacle getting in the way of a physician being reimbursed for her services. The physician, in turn, would have the reimbursement she does collect escalate as a function of the hassle factor. Finally, at some point, the insurance company could no longer create any more obstacles lest it become cost-prohibitive and they would begin to lose money. Same too for all other parties that supervise and regulate medical care and physician behavior.

The hassle factor, HF, clearly is a sum and can be represented by the equation:

Equation (7)

$$\Sigma HF = HF_1 + HF_2 + HF_3 + HF_4 + HF_5 + \ldots$$

The Integrated Formula for the Special Theory of RBRVS

If we now return to the resource-based relative value of a given medical service, we see that the original formula given in equation (1) must be modified to incorporate the objective elements of a physician's work described above. By relating these elements one to another, we get a formula that acknowledges the *specific* activities that constitute the work of physicians, a formula derived under the *special* theory of relative-resource values:

Equation (8)

$$RBRV = (TW)(1+RPC)(1+AST)$$

By substitution,

$$RBRV_{special} = [(A \text{ x } t^{\beta} \text{ x } M^{\tau} \text{ x } S^{\varphi} \text{ x } R^{\delta}) + W_{OC} + W_{tc} + \int W_{ART} + \Sigma\, HF](1+RPC)(1+AST)$$

And by substitution again,

$$RBRV_{special} = [(A \text{ x } t^{\beta} \text{ x } M^{\tau} \text{ x } S^{\varphi} \text{ x } R^{\delta}) + (P_{wrk})(W_{act})(f_{oc}) + (P_{tc})(I_{tc})(T_{tc}) + \int (W_{HP} + W_{PE} + W_{MR} + W_{TST} + W_{CSL}) + \Sigma\, (HF_1 + HF_2 + HF_3 + HF_4 + \ldots)](1+RPC)(1+AST)$$

Thus we see that the relative value of physicians' work can be precisely related by a function which assigns a variable to the significant kinds of work that involve a doctor on a day-to-day basis. Moreover, as the work that involves physicians changes with time, this system allows such changes to be reflected in such formula by deleting, adding, and otherwise modifying the variables as the need arises.

Toward a Rational Basis of Economic Value

The HCFA is to be commended for its foresight in helping to develop, at last, a rational way to set labor costs. Dr. Hsaio and his colleagues have developed an exciting and refreshingly new approach to the economics of service activity. But why limit such a useful approach solely to the field of medicine? The power of these equations is that they are mathematically-based. As such they are pure abstractions—form without content! They provide us with a way to see the logical form of what physicians do, and not just the content of physicians' activities. There is no reason, really, that similar equations cannot be derived in an analogous manner for a host of other occupations.

For instance, why not invent similar equations to apply to the world of business, where chief executive officers can take home multimillion-dollar salaries? What do such executives really do? What are their practice and opportunity costs? Could we not, as a nation, save a significant amount of money by bringing their fee structures into the realm of "inherent reasonableness" by analyzing the work input, practice costs, and opportunity costs of such service? The savings could be directed toward reducing the nation's deficit or contributing to the various entitlement programs that our government currently offers.

We could apply a similar analysis to the field of law, the field of professional sports, and even the movie and television industry. Should we really allow, for example, our sports and movie stars to command multimillion-dollar incomes? Why not analyze the service of attorneys and politicians in a like manner? But why stop there? Perhaps the labor charges at the local automobile dealership are excessive. And why should a stock broker be paid any more for the same trade just because in one instance one thousand dollars exchanges hands and in another ten thousand is invested? Let's analyze the service of plumbers, electricians, carpenters, and teachers. We might find that we have been paying our garbage men and sales clerks too little and the local weatherman too much! As long as we have found a way to calculate resource costs and relative values, let us apply the method systematically to our nation as a whole. Then we can all look at one another and know, in our hearts, that each is being paid on a scale that provides an inherently reasonable fee structure.

If we can really get this economic perspective off the ground and working, we could consider bringing it to the international arena. Perhaps we could offer it to the Soviet Union to see if, the second time around, they can successfully structure a centrally-organized economy. They might be thrilled at the prospect of avoiding what is proving to be a difficult transformation to a market-based economy. To think that decades have gone by while nation after nation has struggled to build a workable socialist economy and the HCFA has been able to do it in the microeconomic sphere of physician salaries simply by commissioning a seasoned professional in the Department of Health Policy and Management at Harvard to build such a system for physicians' services.

Conclusion

The resource-based, relative-value scale was developed to bring the growth rate in expenditures for physicians' services into line with the growth rate of the general economy. In its initial derivation, the scale was found to be much too general and did not address crucial factors that constitute a physician's work such as the on-call schedule, the general availability of the physician to the patient and his family on an ongoing basis, and the fact that it is not simply the condition and severity of illness that determines the level of work of a physician but also the derivation of the history, the type of physical examination that must be performed, the retrieval and review of prior records, the need to discuss options for evaluation and management, the intensity of support a patient and family require as they are helped and guided through the process of an illness, and the need to deal with a host of intermediaries who are involved in trying to control the cost and quality of health care. Accordingly, a special theory of resource-based relativity has been derived that takes these factors into account. Such an analysis is, in theory, applicable to the entire spectrum of occupations that are performed in the operation of a nation's economy and therefore perhaps we should make up similar equations for a variety of other spheres of economic service and activity.

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Dengue Fever Among U.S. Military Personnel—Haiti, September-November, 1994

SINCE 19 September 1994, approximately 20,000 U.S. military personnel have been deployed to Haiti as part of Operation Uphold Democracy. To monitor the occurrence of mosquito-borne illnesses (including dengue fever [DF] and malaria) among deployed military personnel, on 19 September the U.S. Army established a surveillance system for febrile illness. Before deployment, all military personnel were instructed to take antimalarial chemoprophylaxis, either chloroquine phosphate (500 mg weekly) or doxycycline (100 mg daily). This report summarizes surveillance findings for 19 September-4 November.

U.S. military personnel who developed a febrile illness with no apparent underlying cause and reported to a military outpatient clinic were referred to the U.S. Army's 28th Combat Support Hospital in Port-au-Prince for admission and evaluation, including serial blood smears for malaria, blood specimens for virus isolation, and serologic studies. Because dengue virus is the principal flavivirus known to be endemic in Haiti, a probable case of DF was defined as detection of antiflavivirus immunoglobulin M (IgM) antibodies. A confirmed case was defined as isolation of dengue virus.

During 19 September-4 November, a total of 106 military personnel who had febrile illnesses were evaluated. Onset of illness began as early as seven days after deployment, and the weekly number of cases peaked during the week ending 22 October (Fig. 1). Of the 106 patients, 24 had an illness compatible with DF (ie, fever, headache, myalgia, and/or arthralgia, with or without rash). Dengue-like illnesses occurred in personnel stationed in both urban and rural areas of Haiti. One patient with probable DF had hemorrhage from a duodenal ulcer. Another had onset of fever, myalgias, and thrombocytopenia after returning to the United States.

As of 10 November, preliminary laboratory results were available for 48 febrile patients. Of these, antiflavivirus IgM was detected in 11 (23%), and dengue virus was isolated from three additional patients (dengue type 1 [one patient] and dengue type 2 [two patients]). Confirmatory testing of specimens from these patients and other febrile personnel is ongoing. Repeated malaria smears were negative for all patients.

The detection of DF cases among U.S. troops in Haiti prompted the following interventions: 1) use of personal protective measures against biting insects (eg, DEET-containing repellant and bed nets) was reemphasized among unit commanders; 2) routine ultralow volume spraying of troop areas with insecticide (ie, malathion) was implemented; and 3) common larval habitats of *Aedes aegypti* mosquitoes (eg, discarded automobile tires) were identified and eliminated where possible.

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Editorial Note: Dengue virus infection is increasing throughout the Caribbean.[1] Although recent surveillance data from Haiti are not available, the documentation of

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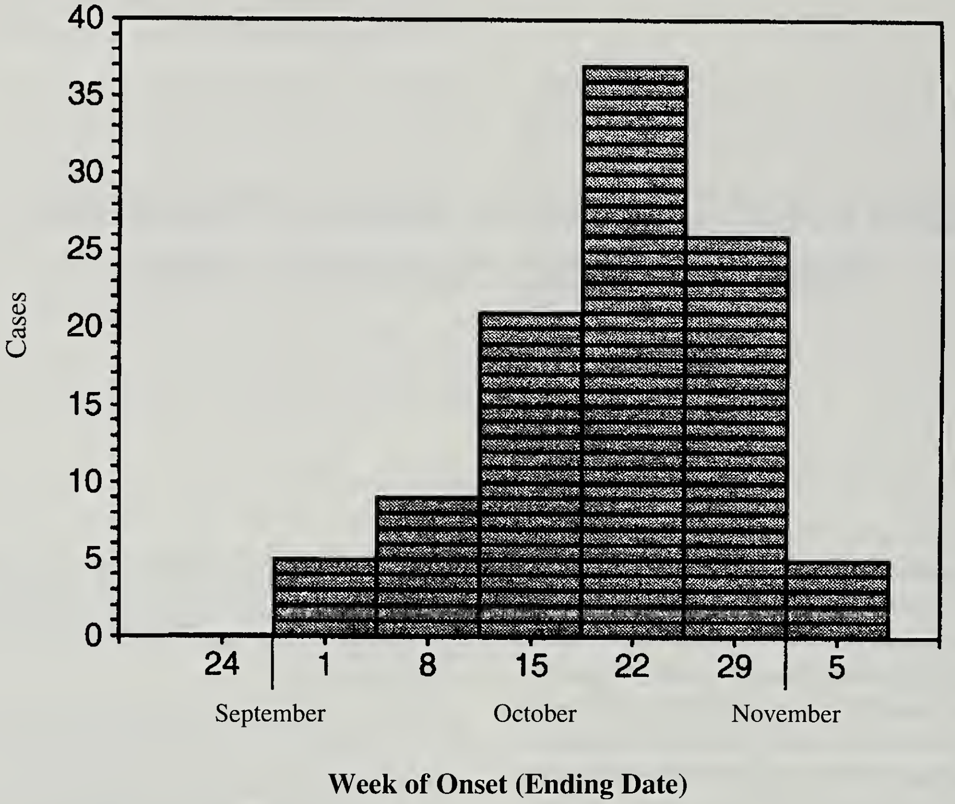
Figure 1.—Cases of febrile illness* among U.S. military personnel, by week on onset—Haiti, September 18-November 5, 1994.



*Excludes three cases for which dates of onset were unknown.

illness and infections among U.S. military personnel confirms the continuing occurrence of DF in Haiti and the circulation of at least two dengue virus serotypes.

The incubation period for DF generally ranges from two to seven days but may be as long as 14 days; therefore, illness may occur while U.S. military personnel are stationed in Haiti or after they return to the United States. Illness is characterized by abrupt onset of fever, chills, headache, eye pain, and lower back pain. Common associated symptoms include myalgia, arthralgia, nausea, vomiting, anorexia, malaise, and a blanching erythematous rash. The clinical course may be characterized by recrudescence of fever for one to two days after initial improvement. Laboratory findings include leukopenia and thrombocytopenia. However, a small proportion of patients may develop dengue hemorrhagic fever (DHF), which is characterized by fever, thrombocytopenia (platelet count <100,000/mm^3), and abnormal capillary permeability evidenced by hemoconcentration, hypoalbuminemia, or pleural or abdominal effusions; mild or severe hemorrhage can occur. DHF can result in circulatory instability or shock, and the risk for these complications may be increased among persons with secondary dengue virus infections.

Most dengue virus infections are self-limited and can be treated with bed rest, acetaminophen, and oral fluids. Some U.S. military personnel deployed to Haiti who also participated in Operation Restore Hope in Somalia during 1992-94 and acquired dengue infections during that operation[3] may be at increased risk for DHF.

Laboratory diagnosis of DF includes detection of serum IgM antibodies, which are usually absent in specimens collected while patients are febrile but can be present in specimens collected after fever has abated.[2] Definitive proof of DF requires virus isolation from serum or a fourfold or greater rise in dengue-specific antibody titers between acute- and convalescent-phase samples. Virus can be isolated from serum obtained only while patients are febrile.

During November-December, approximately 9,000 military personnel will be returning to the United States from Haiti. Nonmilitary U.S. residents also may be traveling to and from Haiti during this period. Because DF and malaria are endemic in Haiti, physicians and other health-care providers in the United States should consider these diseases in the differential diagnosis of febrile illnesses in any person who has recently been in Haiti or other tropical countries in the Americas.[4]

The occurrence of DF among troops deployed to Haiti highlights the increasing impact of this disease in the Americas, the need for an effective vaccine, and the need for increased efforts to control *Ae. aegypti,* the mosquito vector of dengue virus. Dengue virus is now endemic in all Caribbean countries except Cuba and the Cayman Islands.[1] The potential exists for introduction of dengue virus into the United States, and for secondary transmission in areas with vector mosquitoes, because of increased travel to and from regions of the Americas where dengue is endemic.

For assistance with diagnosis of dengue in persons returning from Haiti, specimens from military personnel should be sent through the state health department laboratories to the Walter Reed Army Institute of Research, Building 40, Room 2044, Attention: Major N. Kanesa-thasan, Washington, DC 20307; telephone (202) 576-2015. Specimens from civilians should be sent through state health department laboratories to CDC's Dengue Branch, Division of Vector-Borne Infectious Diseases, National Center for Infectious Diseases, 2 Calle Casia, San Juan, PR 00921-3200; telephone (809) 766-5181. Specimens for virus isolation should be sent on dry ice; specimens sent only for serologic testing may be shipped on cold packs.

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CSMS Charitable Trust Makes Donations

In the spirit of the holiday season and in an effort to help ensure that the needy families of Connecticut enjoyed thanksgiving, the Connecticut State Medical Society's Charitable Trust donated money to the Connecticut Food Bank for the purchase of 1,200 turkeys for needy families in Connecticut. Nancy Carrington, the food bank's executive director noted that the donation was one of the largest single donations in the food bank's history. To assist the needy families of Hartford and Tolland Counties, a $7,000 check was presented to Foodshare of Greater Hartford to help provide food to the hungry. The 1995 Special Olympics World Games is also slated to receive a donation from the Charitable Trust.

Thanks to the generousity of its members, the CSMS Charitable Trust Fund continues to support organizations statewide, dedicated to helping Connecticut's needy.

Drugs for Rheumatoid Arthritis

THE MEDICAL LETTER

MANY different drugs are now used to treat rheumatoid arthritis. Aspirin and the other nonsteroidal anti-inflammatory drugs (NSAIDs) listed in the table on page 102 have analgesic and anti-inflammatory effects, and they are relatively safe. The second-line drugs listed on page 106 have no immediate analgesic effects, but they can control symptoms and may delay progression of the disease. NSAIDs usually are taken concurrently with the slower acting second-line drugs, which, with the exception of methotrexate, may take months to produce a therapeutic response (JM Cash and JH Klippel, *N Engl J Med*, 330:1368, May 12, 1994).

NSAIDS—Aspirin in high doses is as effective as any other NSAID and much less expensive, but many patients cannot tolerate its gastrointestinal toxicity. No NSAID is consistently more effective than any other, but some patients who do not respond to or tolerate one may respond to or tolerate another.

Adverse Effects—It is not clear whether an equally effective dose of any NSAID is safer than any other. All NSAIDs can cause dyspepsia and gastrointestinal toxicity, including gastric and duodenal ulceration and perforation, with or without warning symptoms, especially in elderly patients treated chronically with these agents. All NSAIDs except the nonacetylated salicylates can interfere with platelet function and prolong bleeding time. Except with aspirin, this effect is reversible when the drug is cleared, but the combination of gastrointestinal irritation and prolonged bleeding time can cause serious gastrointestinal hemorrhage, especially in elderly patients. Some studies have found that ibuprofen *(Motrin,* and others) and naproxen *(Naprosyn,* and others) have a lower risk of serious gastrointestinal complications than other NSAIDs (LA Garcia Rodriguez and H Jick, *Lancet,* 343:769, 1994). Nabumetone *(Relafen)* may cause less gastric irritation than other NSAIDs (*Medical Letter*, 34:38, 1992). Meclofenamate *(Meclomen,* and others) may cause a high incidence of diarrhea, which is sometimes severe. Piroxicam *(Feldene,* and others), which has a longer half-life and may cause a higher incidence of gastrointestinal bleeding than other NSAIDs, should be avoided in elderly patients. Misoprostol *(Cytotec),* a prostaglandin analog, can prevent gastric ulceration caused by NSAIDs (DY Graham et al, *Ann Intern Med*, 119:257, 1993).

NSAIDs decrease renal blood flow, cause fluid retention, and may cause renal failure in some patients, particularly the elderly (D Schlondorff, *Kidney Int*, 44:643, 1993). Diminished renal function and decreased effective intravascular volume due to diuretic therapy, cirrhosis, or congestive heart failure may increase the risk of renal toxicity. Renal papillary necrosis, interstitial nephritis, and the nephrotic syndrome occur rarely.

All NSAIDs can cause central-nervous-system (CNS) effects such as dizziness, anxiety, drowsiness, and confusion; these symptoms may occur initially and disappear with further use. Indomethacin *(Indocin,* and others) may cause more severe CNS adverse effects than other NSAIDs; depression, disorientation and, especially, severe headache occur frequently with higher doses. Tinnitus has been associated particularly with high doses of salicylates. Aseptic meningitis has occurred rarely in patients with lupus erythematosus or other connective tissue diseases who were taking ibuprofen, tolmetin *(Tolectin,* and others), or sulindac *(Clinoril,* and others) and has been reported with ibuprofen and naproxen in patients without any connective tissue disease.

NSAIDs frequently cause small increases in hepatic enzyme activity, but life-threatening hepatic toxicity is rare (LA Garcia Rodriguez et al, *Arch Intern Med*, 154:311, 1994). Pancreatitis has been reported. NSAIDs rarely cause blood dyscrasias; aplastic anemia has been reported with ibuprofen, fenoprofen *(Nalfon,* and others), naproxen, indomethacin, tolmetin, and piroxicam. Asthmatic patients sensitive to aspirin could develop severe bronchospasm and anaphylactoid reactions with any NSAID. Various types of dermatological toxicity have been reported with NSAIDs, including toxic epidermal necrolysis. NSAIDs may interact with many other drugs; they may, for example, decrease the effectiveness of diuretics, beta-blockers, ACE inhibitors, and some other antihypertensive drugs *(The Medical Letter Handbook of Adverse Drug Interactions,* 1993, page 192).

Reprinted from *The Medical Letter,* Vol. 36, November 11, 1994.

Cost of Some Nonsteriodal Anti-Inflammatory Drugs

Drug	Usual dosage range for arthritis	Cost*
Aspirin, extended-release—average generic price (range: $9.64 to $15.42)	1,600 mg bid	$12.65
Extended *Release Bayer 8 Hour*† (Sterling)	1,300 mg tid	17.25
ZORprin (Boots)	1,600 mg to 3,200 mg bid	34.86
Aspirin, enteric-coated†—average generic price (range: $3.24 to $12.00)	1,000 mg qid	7.14
Extra Strength Bayer Enteric Aspirin†		28.42
Non-acetylated salicylates		
Magnesium salicylate—*Magan* (Savage)	1,090 mg tid-qid	82.71
Choline salicylate—*Arthropan* (Purdue Frederick)	4.8 to 7.2 grams/day divided	54.77
Choline magnesium salicylate—average generic price (range: $40.32 to $60.08)	3 grams/day in 1, 2 or 3 doses	47.16
Trilisate (Purdue Frederick)**		81.21
Sodium salicylate†—average generic price (range: $2.79 to $6.45)	3.6 to 5.4 grams/day divided doses	4.35
Salicylsalicylic acid (salsalate)— average generic price (range: $13.72 to $54.32)	3 to 4 grams/day in 2 or 3 doses	27.95
*Disalcid (3*M)		55.66
Mono-Gesic (Central)		33.42
Diclofenac—*Voltaren* (Ciba-Geigy)	150 to 200 mg/day in 2 or 3 doses	66.23
Diflunisal— average generic price (range: $23.33 to $30.12)	500 to 1,000 mg/day in 2 doses	28.54
Dolobid (MSD)		34.57
Fenoprofen— average generic price (range: $24.63 to $31.94)	300 to 600 mg tid-qid	29.75
Nalfon (Dista)		34.88
Flurbiprofen—*Ansaid* (Upjohn)	200 to 300 mg/day in 2, 3 or 4 doses	71.72
Ibuprofen‡—average generic price (range: $5.09 to $14.36)	1,200 to 3,200 mg/day in 3 or 4 doses	9.51
Motrin (Upjohn)		17.85
Rufen (Boots)		16.56
Indomethacin—average generic price (range: $4.91 to $22.10)	25 to 50 mg tid-qid	10.38
Indocin (MSD)		46.99
extended-release— average generic price (range: $27.50 to $36.38)	75 mg once/day or bid	30.95
Indocin SR (MSD)		42.13
Ketoprofen—average generic price (range: $72.56 to $80.33)	50 to 75 mg tid-qid	77.70
Orudis (Wyeth-Ayerst)		89.11
Oruvail (Wyeth-Ayerst)	200 mg once/day	62.07
Meclofenamate sodium—average generic price (range: $20.40 to $61.20)	200 to 400 mg/day in 3 or 4 doses	40.62
Meclomen (Parke-Davis)		88.94
Nabumetone—Relafen (SK Beecham)	1,000 once/day to 2,000 mg/day	58.68
Naproxen—average generic price (range: $39.80 to $45.73)	250 to 500 mg bid-tid	41.05
Naprosyn (Syntex)**		46.46
Naproxen sodium‡—average generic price (range: $36.00 to 41.01)	275 mg or 550 mg bid	39.79
Anaprox (Syntex)		46.31
Oxaprozin—*Daypro* (Searle)	1,200 mg once/day to 1,800 mg/day	70.01
Piroxicam—average generic price (range: $39.00 to $67.67)	20 mg once/day	60.90
Feldene (Pfizer)		74.21
Sulindac—average generic price (range: $31.82 to $50.55)	150 to 200 mg bid	45.51
Clinoril (MSD)		55,95
Tolmetin—average generic price (range: $31.03 to $36.45)	600 to 1,800 mg/day in 3 or 4 doses	34.20
Tolectin (McNeil)		54.96

* Cost to the pharmacist for 30 days' treatment with the lowest usual dosage, based on wholesale price (AWP) listings in Red Book 1994 and October Update.

** Also available as liquid formulation

† Available without a prescription

‡ Also available without prescription in a lower tablet strength

SECOND-LINE DRUGS—Failure to achieve or maintain an adequate response with an NSAID alone calls for addition of a second-line drug—often hydroxychloroquine for mild rheumatoid arthritis or methotrexate if the disease is more severe. Many clinicians now do not wait for an NSAID response but begin therapy with a second-line drug at the time of diagnosis. All second-line drugs require regular monitoring for adverse effects.

HYDROXYCHLOROQUINE ***(Plaquenil)*****—**The antimalarial hydroxychloroquine in doses of 200 mg to 400 mg daily is frequently effective for rheumatoid arthritis and is usually well tolerated (ED Harris, *Ann Intern Med*, 119:1146, 1993). Nausea and epigastric pain can occur, but serious adverse effects are rare. Retinal damage has occurred but can generally be avoided if vision is monitored (visual fields, color vision) at six to twelve month intervals and the drug is discontinued promptly when signs of retinal toxicity first appear.

METHOTREXATE ***(Rheumatrex,*** **and others)—** Oral methotrexate in low dosage decreases the symptoms of rheumatoid arthritis, and some rheumatologists now consider it a first-line drug. Medical Letter consultants recommend starting with 5 to 7.5 mg once a week, which can be increased gradually to 15 to 20 mg per week. Taking the drug weekly in two doses 12 hours apart has not been more effective or safer than a single weekly dose. The antirheumatic effect of low-dosage once-weekly methotrexate is often apparent within four to six weeks of treatment. For patients who have gastrointestinal effects or lose benefit over time with oral methotrexate, giving the same dose intramuscularly once weekly may be helpful. Some clinicians do not prescribe methotrexate for patients with a serum creatinine concentration higher than 2 mg/dL.

Adverse Effects—In low dosage, methotrexate is often well tolerated, but it commonly causes anorexia, nausea, vomiting, abdominal cramps and increased hepatic enzyme activity, and rarely bone marrow suppression, pulmonary toxicity, and hepatic fibrosis. Hypersensitivity pneumonitis, frequently severe, occurs in 1% to 4% of rheumatoid arthritis patients taking methotrexate. The drug is immunosuppressive; infections such as herpes zoster and *Pneumocystis carinii* have been reported to be more common in patients taking methotrexate for rheumatoid arthritis (MAS Antonelli et al, *Am J Med*, 90:295, 1991; A Wollner et al, *Thorax*, 46:205, 1991). Lymphomas associated with Epstein-Barr virus have occurred during methotrexate therapy for rheumatoid arthritis and regressed completely after the drug was stopped (OW Kamel et al, *N Engl J Med*, 328:1317, 1993). Trimethoprim/sulfamethoxazole *(Bactrim,* and others) and possibly sulfasalazine *(Azulfidine,* and others) may increase bone marrow suppression due to methotrexate (H Groenendal and FHJ Rampen, *Clin Exp Dermatol*, 15:358, 1990).

Patients taking methotrexate require close monitoring for hepatic toxicity (JM Kremer et al, *Arthritis Rheum*, 37:316, 1994). Leucovorin, 2.5 to 5 mg, given 24 hours after the methotrexate dose may decrease the severity of nausea, mucosal ulceration, and hepatic toxicity (JB Shiroky et al, *Arthritis Rheum*, 36:795, 1993). Some clinicians recommend folic acid, 1 mg daily, to avoid folate depletion. Methotrexate is teratogenic and should not be given to women who are or may become pregnant. It is also an abortifacient and can impair fertility in both men and women. In elderly patients or others with decreased renal function, concurrent use of an NSAID may increase serum concentrations and the toxicity of methotrexate *(Medical Letter Handbook of Adverse Drug Interactions,* 1993, page 168).

GOLD—Gold salts have been used for many years for treatment of severe rheumatoid arthritis. Recently, some clinicians have questioned their effectiveness (W.V. Epstein, *Semin Arthritis Rheum*, 23:32, 1994), but one meta-analysis placed them among the more effective of the second-line drugs (DT Felson, *Arthritis Rheum*, 35:1117, 1992). Gold sodium thiomalate *(Myochrysine)* and aurothioglucose *(Solganal)* are the two injectable preparations available in the USA. An oral preparation, auranofin *(Ridaura), is* also available; it is generally less effective than injectable gold.

Dosage—The usual dosage of injectable gold includes a test dose of 10 mg, followed one week later by 25 mg once a week for two weeks, and then 50 mg weekly for up to 20 weeks. If a response occurs, treatment intervals may increase to every two weeks, then every three weeks, and then monthly. Response usually occurs within three to six months after starting treatment. Patients who respond should remain at least on monthly therapy; discontinuing maintenance gold therapy often results in recurrence of arthritis that may not remit when gold is re-instituted.

The dosage of auranofin is 3 mg twice a day or 6 mg once daily. If the disease does not respond, dosage may be increased to 3 mg t.i.d. if tolerated. If the response is still unsatisfactory, the drug should be discontinued.

Adverse Effects—Many patients have to discontinue injectable gold because of adverse effects, particularly stomatitis, rash, proteinuria, leukopenia, and thrombocytopenia. Some clinicians obtain a complete blood count and urinalysis before each injection or every other injection to detect drug-related cytopenia or proteinuria. Pruritic rash and stomatitis sometimes resolve if therapy is withheld for a few weeks and then re-started cautiously at a lower dose. Enterocolitis and aplastic anemia are rare but potentially fatal adverse effects. Interstitial pneumonitis is another rare but serious adverse effect. Gold thiomalate uncommonly causes a "nitritoid" reaction characterized by flushing, weakness, nausea, and dizziness within 30 minutes of injection. These reactions, which are usually mild, rarely occur with aurothioglucose. Oral gold causes less mucocutaneous, bone marrow, and renal toxicity than injectable gold, but more diarrhea and other gastrointestinal reactions. Gold therapy is generally not recommended during pregnancy or lactation.

SULFASALAZINE (*Azulfidine*, and others)—Although not approved for such use by the US Food and Drug Administration (FDA), sulfasalazine in recent years has become increasingly popular as a treatment for rheumatoid arthritis. A meta-analysis of short-term clinical trials found sulfasalazine to be among the most effective second-line drugs (DT Felson et al, *Arthritis Rheum*, 35:1117, 1992). Its toxicity, however, may be greater than that of methotrexate or hydroxychloroquine. Two small studies have suggested that sulfasalazine may slow the progression of joint damage (DM Van der Heijde et al, *Lancet*, 335:539, 1990; P Hannonen et al, *Arthritis Rheum*, 36:1501, 1993).

Adverse Effects—Nausea, anorexia, and rash are fairly common with sulfasalazine, but serious reactions such as hepatitis and blood dyscrasias are rare. Sperm counts may decrease, but return to normal after withdrawal of the drug. Enteric-coated sulfasalazine decreases gastrointestinal toxicity.

PENICILLAMINE (*Depen, Cuprimine*)—Penicillamine can be effective in patients with refractory rheumatoid arthritis and may delay progression of erosions. The manufacturer recommends beginning with 125 or 250 mg once a day and slowly (at one- to three-month intervals) increasing by 125- or 250-mg increments up to 1,000 and rarely to 1,500 mg per day. Penicillamine should be taken between meals because food decreases its absorption.

Adverse Effects—The most common adverse effects of penicillamine are similar to those of parenteral gold - pruritic rash, proteinuria, aphthous ulcers, leukopenia, and thrombocytopenia (HG Taylor and A Samanta, *Drug Safety*, 7:46, 1992). Anorexia, nausea, and transient decreased or altered taste (dysgeusia) are also relatively common adverse effects. Rarely, pemphigus, myasthenia gravis, Goodpasture's syndrome, fever, lupus-like illness, polymyositis, dermatomyositis, cholestatic hepatitis, severe bone marrow depression, and bronchiolitis can occur. Penicillamine is teratogenic and should not be used during pregnancy.

AZATHIOPRINE (*Imuran*)—Azathioprine, a purine analog immunosuppressive drug, given in a dosage of 1 to 2.5 mg/kg/day can be effective for refractory rheumatoid arthritis, but some patients cannot tolerate it.

Adverse Effects—Nausea, vomiting, abdominal pain, hepatitis, and reversible bone marrow depression can occur with azathioprine. Severe toxicity is uncommon with the dosage used for rheumatoid arthritis, but an increased risk of lymphoma has been reported. Concurrent use of allopurinol (*Zyloprim,* and others) can increase the toxicity of azathioprine by interfering with its metabolism (*Medical Letter Handbook of Adverse Drug Interactions,* 1993, page 49). Azathioprine is not recommended for use during pregnancy.

Cost of Second-Line Drugs for Rheumatoid Arthritis

Drug	Usual dosage range for arthritis	Cost*
Hydroxychloroquine sulfate—*Plaquenil* (Sanofi Winthrop)	200 to 400 mg/day	$ 33.13
Methotrexate, oral—average generic price (range: $43.11 to $57.44)	10 to 15 mg/week	46.84
Rheumatrex (Lederle)		52.81
Methotrexate, injectable	10 to 15 mg/week	
powder (Immunex)		11.12
liquid (Immunex)		19 00
liquid (Cetus)		27.52
Gold sodium thiomalate—*Myochrysine* (MSD)	50 mg/week	41.87
Aurothioglucose—*Solganal* (Schering)	50 mg/week	42.92
Auranofin—*Pidaura* (SK Beecham)	3 mg bid or 6 mg once	65.80
Sulfasalazine—average generic price (range: $12.88 to $21.60)	2 to 4 grams/day	16.30
Azulfidine Entabs (Kabi)		28.36
Penicillamine—Cuprimine (MSD)	500 to 750 mg/day	52.60
Depen (Wallace)		74.95
Azathioprine—*Imuran* (Burroughs Wellcome)	1.5 to 2.5 mg/kg/day	68.01

* Cost to the pharmacist for 30 days' treatment with the lowest usual dosage, based on wholesale price (AWP) listings in Red Book 1994 and October Update. Cost of injectable methotrexate is based on single use of the smallest vial available.

CORTICOSTEROIDS—Use of corticosteroids in rheumatoid arthritis is controversial (MH Weisman, *Rheum Dis Clin North Am*, 19:189, 1993). Many patients who have an inadequate response or are intolerant to second-line agents benefit from 5 to 10 mg of prednisone per day or less. Low-dose prednisone may be especially useful in elderly patients as an alternative to the risks and inconvenience associated with second-line drugs and in younger patients to control active disease temporarily until second-line drugs with a slower onset of action can provide sufficient control. Corticosteroids in higher doses may be required to control severe systemic manifestations of rheumatoid arthritis, such as pericarditis or vasculitis. Intraarticular injection of a corticosteroid often can relieve an acutely inflamed rheumatoid joint with fewer systemic consequences than oral or intravenous preparations.

Adverse Effects—The adverse effects of systemic corticosteroids include osteoporosis, cataracts, poor wound healing, gastric ulcers, gastrointestinal bleeding, hyperglycemia, hypertension, adrenal suppression, and increased risk of infection (KG Saag et al, *Am J Med*, 96:115, 1994). Even short-term use in low doses can cause bone loss (RFJM Laan et al, *Ann Intern Med*, 119:963, 1993).

CAPSAICIN ***(Zostrix-HP)***—An alkaloid found in hot peppers, capsaicin is marketed in the USA for topical treatment of arthritis (*Medical Letter*, 34:62, 1992). Some patients have found that continued use of the drug can relieve pain.

COMBINATION SECOND-LINE THERAPY—Combination therapy theoretically could be more effective than individual second-line agents due to additive effects and less toxic due to reduced individual drug dosages, but clinical trials have generally failed to show any added benefit (HJ Williams et al, *Arthritis Rheum*, 35:259, 1992; RF Willkens et al, *Arthritis Rheum*, 35:849, 1992; KL Faarvang et al, *Ann Rheum Dis*, 52:711, 1993).

INVESTIGATIONAL DRUGS—Cyclosporine *(Sandimmune)* can be useful in some patients with refractory rheumatoid arthritis (P Tugwell et al, *Lancet*, 1:1051, 1990; RBM Landewe et al, *J Rheumatol*, 21:1631, Sept 1994). Preliminary data suggest that monoclonal antibodies to tumor necrosis factor might be effective (M. Elliott et al, *Lancet*, 344:1105 and 1125, Oct 22, 1994). Dietary manipulation, particularly supplementation with omega-3 fatty acids, has been reported to be helpful (J Kjeldsen-Kragh et al, *J Rheumatol*, 19:1531, 1992), as have oral administration of collagen from articular cartilage, gammalinolenic acid, and the antibiotic minocycline *(Minocin,* and others) (DE Trentham et al, Science, 261:1727, 1993; LJ Leventhal et al, *Ann Intern Med*, 119:867, 1993; M Kloppenburg, *Arthritis Rheum*, 37: 629, 1994).

CONCLUSION—When rheumatoid arthritis does not respond to an NSAID, Medical Letter consultants often add hydroxychloroquine for patients with mild arthritis or methotrexate if the disease is more severe. In the dosage used to treat rheumatoid arthritis, methotrexate is often effective and well tolerated. Some consultants do not wait for a response but add the second drug as soon as the diagnosis is well established in an effort to avoid joint destruction and disability.

The Deadly Nightshades

STANLEY M. ARONSON, M.D.

NIETZSCHE may have invented the concept of superman, but it was a uniquely American culture that gave it dimension, élan and mass appeal. The enduring fame of Superman, now entering its seventh decade, has obscured still other comic book heroes equally capable of awesome exploits. One of these, for example, was Mandrake the Magician whose weekly adventures tempered, for a generation of adolescents, the harsh realities of the great depression years. Why the creator of the comic strip had chosen the name Mandrake is obscure, but certainly this name carries magical credentials extending back to ancient Greece where a local plant of allegedly great magical powers bore the name of *Mandragos.* By the middle ages, this name had been corrupted, in Old German, to *mandrahg,* and, eventually in English, to mandrake.

Mandragos, a biennial or perennial plant native to the Mediterranean basin, is a short, undistinguished shrub with fetid, fleshy, lancinate leaves and clusters of shiny berries, somewhat resembling parsnip. It possesses a characteristically forked root that, with some febrile imagination, bears a vague resemblance to the human form (see figure). Plants do not carry warning labels and eventually some empiric testing of mandragos root likely elicited unforeseen effects, including narcosis, madness, and even death. These outcomes—and the bifurcated root structure—led to the curious aura of mystery and occult evil that still surrounds this plant. It was believed, for example, that there was a homunculus hidden within the mandrake roots that shrieked hideously if the roots were exposed. Accordingly, many medieval herbal texts recommended that dogs be trained to dig up the plant lest the unearthly cries benumb or madden the humans harvesting the roots.

The alleged medicinal benefits of mandrake have been marvelously diverse. It had served, reputedly, as an emetic, an anodyne, a drug central to primitive tribal initiation and fertility rites; and, in classical times, as a soporific said to be given to prisoners awaiting crucifixion.

Shakespeare has Cleopatra say: "Give me to drink mandragora, That I might sleep out this great gap of time, My Anthony is away." And Othello places mandragora and the poppy amongst "... the drowsie syrups of the world." Chapman, a contemporary of Shakespeare states: "I have drunk Lethe and mandragora to forget you." (Lethe is the river of forgetfulness and oblivion in classical Hades, and is the etymological source for the word lethargy.) Donne, with great pharmacokinetic prescience, describes the perilously narrow range between the therapeutic and lethal concentrations of mandrake extract, when he writes: "... mingled wine with mandrake, whose operation is betwixt sleepe and poyson." Mandrake appears briefly in the Bible as a possible fertility aid within the complex tale of Jacob, Leah and Rachel (Genesis 30: 14).

The mandrake plant (Linnaeus named it *Mandragora officinarum,* ie, the mandrake of the apothecaries) is a member of an astonishingly eclectic botanical family called the *Solanaceae* (the sun flowers). This diverse family includes *Solanarum tuberosum* (the Irish potato); *Lycopersicon esculentum* (the common tomato); the *Capsicum* genera (the New World peppers such as chili, cayenne, pimento); and *S. melongena* (the common eggplant). John Parkinson, the English botanist, was morbidly

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STANLEY M. ARONSON, M.D., Editor-in-Chief, *Rhode Island Medicine.* Reprinted with permission from *Rhode Island Medicine,* October 1994, Vol. 77, No. 10. pp. 341-2.

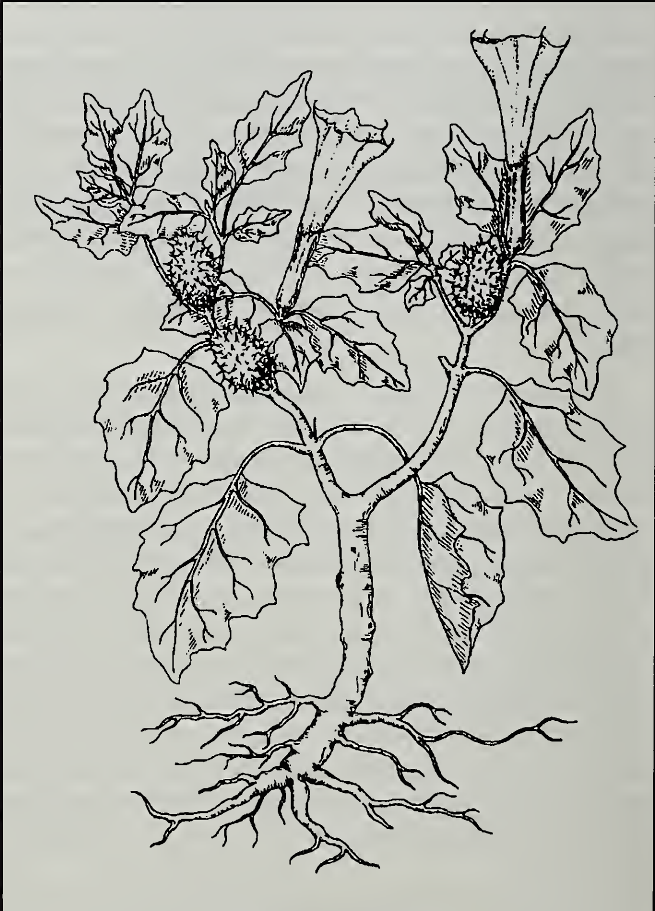
Mandragora officinarum

suspicious of eggplant. In 1640 he wrote: "... for by their bitternesse they engender Melancholly, the Leprosie, Cancers, the Piles, Impostumes, the Headache and a stinking breath ... unless they be boiled in Vinegar. It invites to Venery." Verily, Parkinson seems to have discovered the alchemic substrate of most of man's ills; and many chefs will be amazed to learn that the principal ingredient of their ratatouille had once been considered an aphrodisiac. The pre-Linnaean name for eggplant, incidentally, was *Mala insana,* the mad apple. Still other members of the solanaceous family include *Nicotiana tabacum* (the source of smoking tobacco); and the delicate and wondrously colorful petunias.

Many of these plants have emerged historically in curious ways. In 1676, a contingent of British soldiers was assigned to the Jamestown, Virginia, garrison. Some of them harvested a local weed, then called Jamestown Weed or thorny apple, for an impromptu salad. Within hours, those who ate it exhibited a manic, disruptive, and foolish behavior lasting for many days after which they "... return'd to themselves again, not remembering anything that had pass'd." The name, Jamestown Weed, has gradually been contracted to its current secular form, Jimson Weed (*Datura stramonium).* The weed is widely distributed throughout North America and its behavior-modifying and poisonous essence had been recognized, and respected, long before the British entered the New World. Datura plants were employed for sacred rites in the Aztec culture and to this day they are surreptitiously cultivated by Native American tribes in the southwestern states. Datura species are resident to Asia as well; indeed, the word Datura is a Hindi word *(dhatura)* meaning thorn-apple. The symptoms of datura intoxication include headache, nausea and vomiting, vertigo, thirst, dilated pupils, hallucinations, mania; and ultimately, amaurosis, convulsions and death.

Yet another member of this potentially hazardous plant family is Henbane (*Hyoscyamus niger*) sometimes called Old World nightshade. A bane, in old English, describes a poisonous substance (eg, wolfbane, cowbane, etc.).

The most pharmacologically prominent of the berry-bearing solanaceous plants is *Atropa belladonna,* commonly called deadly nightshade or sorcerer's herb. It is the likely agent, when added to wine, for the frenzied behavior of the ancient Bacchanalian rites. The genus name, *Atropa,* is an allusion to Atropos, the third of the three Grecian Fates, goddesses held responsible for determining the destiny and life-span of each mortal. (Clothos, the first Fate is said to spin the thread of life; Lachesis, the second, determines the length of thread assigned to each mortal; and Atropos, the third, has the cheerless task of cutting the thread of life. Atropos, in Greek, means incapable of turning, ie, remorselessly inflexible and it was considered an appropriate name for the toxic essence of this plant,



Dutura stamonium

whose effects could not be reversed. In the 19th century, the name evolved to atropine.) *A. belladonna* remains the principal source of such currently used drugs as atropine, scopolamine, and hyoscine.

No temperate or tropical culture, developing or advanced, is ignorant of the pharmacological properties of the solanaceous plants. Aboriginal tribes of Australia, for example, use a local plant called *pituri (Duboisia hopwoodii)* for its narcotic properties. When, during World War II, the Australians were cut off from commercial sources of atropine and scopolamine, they turned to their native *Duboisia* for the hyoscyamine alkaloids.

The members of these closely related solanaceous genera *(Datura, Hyoscyamus, Atropa, Mandragora, Duboisia)* all contain varying proportions of powerful sympatholytic (muscarinic) alkaloids particularly atropine (DL-hyoscyamine) and scopolamine (L-hyoscine). These naturally occurring agents may be converted synthetically to methyl nitrates or methyl bromides to form quaternary analogs such as homatropine and propantheline (Pro-Banthine). Even the benevolent potato contains small amounts of a toxic alkaloid, solanine, which is readily destroyed in cooking.

The pre-Columbian Europeans were quite familiar with the toxic effects within the *Datura, Mandragora,* and *Atropa* genera. And when a new, but botanically related, plant—the tomato—was brought back from the New World, the initial reaction that it was poisonous is quite understandable.

Few botanical families can boast of the astonishingly varied products generated by the *Solanaceae.* This essentially New World group of wild perennials is an abundant source of nutrition (potatoes, tomatoes, eggplant), dietary enlivenment (chili and other peppers), beauty (petunias), morbid diversion (tobacco), and medication (atropine, scopolamine): Perhaps not magical, but truly astonishing nevertheless in the complexity of its gifts to mankind.

It is a truism that when the molecular formulas of hitherto enigmatic extracts are clarified, their former mysticism is irrevocably lost. Circe, the mythic Greek enchantress, used a decoction of mandragora when beguiling the sailors of Ulysses. The Homeric glamour dissipates when the alleged potion is now known to be but a weak solution of scopolamine and mandramine.

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Breast Cancer in the Family

The Cloud

And into this idyllic time breast cancer crept.
We had our luck: the nodes are clear
With other types that's it home free
But breast can misbehave
It breaks the cancer rules.
So in the vein prevention goes,
One down and twelve more monthlies left.

This week it's chemo and R.T.
Next year when both are done, and Boy-o's nearly three
We'll have a respite.

Wonder if it's coming back.
It's life writ small
You don't know what's around that curve.
Feel fine today? Then take the present that we own,
You see, and make it wrought so well there can be
no regrets,
Backlooking in six decades or six months.
And what if cancer being gone, it kills not life
But joy in life?
Then we are victims needlessly: or fools

For Rosemarie

Now you are you are you I want
Intact
You are
Yes you
Intact

Hear me say
If you can take it so can I

Just stay with us

Mommy's Getting Chemo

Ro hates it that you know the word at two years old.
I think she sees it as a loss of innocence
As what we can't protect you from.
But I, my boy,
Would rather take it as your stride,
And ours,
That this thing too is integral
That supple-boy can manage,
Grow from even this,
He is so centered, sound
Secure in what we are, his
Shock-absorbers made of love,
The strongest in the world.

A Year of Preventive Chemotherapy

Where have I been, in the night, in the rain?
Walking in darkness and smelling the air.
Hearing spring peepers, their tinkling trills
Metallic, crescendo and fused.
Savoring darkness and being alone.
Safe sleeps my Joseph at home.
Ro will be finished come end of next week
God grant her bone scan is clear.

Prairie Falcon

Soars across Montana sky replete with blue and light
Exulting in her strength she rides a thermal, wingbeats twice
And stoops across the rockscape.
Something in the meadowlark
Gives pause she hesitates to close its eye
Confused she crosses air
And river, finds the cliff
Alights, walks surely
On the skitterstone
She folds her wings
And finds she is a woman
Who has lost a breast,
Is walking on the scree
Is sure of foot
Would fly away
Would bring her son

Rosemaria

"My mother will be here tonight"
Our Joseph told his teacher (second grade)
"For Open House, and she'll be beautiful."
That evening Mrs Whalen met you, smiled wide,
Told you his words, and said to tell him he was right.
While I, a continent away, was making Rounds:
A teaching doctor and a guest,
Missed out: I wish I'd been there and had seen your face
At that, my love
I wish I'd seen and held and thought and said those words myself

Lymphedema Hand

Watch your hands that fold the knead the dough
Foldslap the yeasty stuff against your granite
On their way to making crusty bread
The bread from heaven.
Watch your lymphedema hand:
It does as well.
It takes no pity.
Well up in me why
You have no asterisk.
You have my love.
Incorporate, I mean the word as root:
This part within your body,
Mark of brush of death,
No more defines nor limits you,
Is you
Is less than you.
Repeat the evident: what's you at root
Untouched by cancer then and now

At seventeen
Our marriage more than half the time my parents had.
I want these years now past to be mere overture:
Watch Joseph grow, each minute relish
God's immensest gift of him
Celebrate his wedding day
His babies
And his babies' kids
With you, my sweetheart of the swollen hand.

Henry Schneiderman, M.D.
Farmington

Guest Editorials

Mortality and Morbidity of 22- to 27-Week Gestational Age Infants Born at High-Risk Perinatal Units in Connecticut in the Surfactant Era:

What Conclusions Do We Draw From These Data?

In the abstract (p. 19), Hussain et al report survival and short-term morbidity for 405 infants inborn at three tertiary-care neonatal intensive care units in the state of Connecticut after surfactant replacement therapy became available. This information represents a valuable and necessary contribution to current knowledge regarding outcomes for extremely preterm infants for several reasons. First and foremost, this report represents a "best case scenario" as all these infants were inborn at a tertiary-care center and were actively resuscitated in the delivery room. Second, the collaboration of three institutions (the University of Connecticut, Yale University, and Hartford Hospital) in compiling survival and morbidity data is a model for the type of regional collaboration in recording outcome which is necessary if useful information regarding neonatal or other outcomes is to be made available to patients, or, in this case, parents, in a timely fashion. Finally, unlike most other reports of outcome, Hussain and colleagues report gestational age-specific outcome—a much better reflection of gestational maturity than the use of birthweight alone.

Is the glass half-empty or half-full, one is tempted to ask after reviewing the data? The good news is that survival for infants born at ≥26 weeks gestation was 87%, and three-quarters of the survivors were without significant short-term nonrespiratory morbidity. How these infants will fare developmentally over the long run, particularly as they enter the school system, remains an open book. The bad news is that despite the availability of surfactant and active resuscitation in the delivery room, 100% of infants born at 22-weeks gestation died; 73% of those born at 23-weeks gestation died, and 44% of those born at 24-weeks gestation died. Furthermore, a substantial number of those surviving infants born at 23- to 24-weeks gestation had intraventricular hemorrhage or Grade 3 or 4 retinopathy of prematurity.

How should we incorporate this information into current practice? While some may argue that survival statistics can never predict outcome for an individual infant, these data do give us rough parameters to use in opening conversations with parents regarding levels of intervention for extremely preterm infants. At the very least, this information should solidify our support of parents who face difficult choices for infants born at ≤ 24-weeks gestation and reinforce our belief that, despite the introduction of surfactant, the limit of viability still lies at 23- to 24-weeks gestation.

December 1994

Marilyn R. Sanders, M.D.

Farmington

Health-Care Reform: We All Have a Role to Play

Health care in America is alive and well. Make no bones about it; people with means come from all over the world to receive treatment in America's health-care facilities. Health-care financing in this country, on the other hand, has much to be desired. Current debates in Congress, in the media, in doctors' offices, in attorneys' offices, and in the hallways of hospitals center around the mistaken title of "health-care reform." People everywhere are under the erroneous notion that health care is about to change. Nothing could be further from the truth. Even the poorest of the poor will continue to be cared for in our nation's hospitals, clinics, and doctors' offices. (It is true of course that the poor have a difficult time getting to medical facilities or often wait until it is too late.)

The real issue at hand is rising costs and a redistribution of the manner in which those costs are paid. In truth, we are all at fault: the physician, the patient, the attorney, the health care worker, the insurer, the hospital administrator, the bureaucratic regulator, the pharmaceutical manufacturer, the medical equipment manufacturer, and the Congress. We must all wake up and smell the roses, as we have all been asleep and smelling the ether for too long. Let's face it, with the loss of heavy industry to overseas markets, the burgeoning and lucrative health insurance business, and the rapidly advancing technologies in medicine, it is a small wonder why everyone wants a piece of the health-care dollar.

Consider briefly each of our roles in contributing to the escalating health-care costs which we are seeing today. For too many years, physicians had their own way with regard to setting fees. The usual and customary charge was the standard by which third-party payers would reimburse physicians and other primary health-care providers for their services. Some greedy members of the physician community would frequently and continuously raise their fees to whatever the market would bear. (Kind'a reminds one of ballplayers, team owners, and rock stars of today, doesn't it?) But physicians were not alone in this endeavor. Other health-care providers including chiropractors, podiatrists, naturopaths, homeopaths, and the like were just as guilty. Greedy health-care providers needed and deserved to be taught a lesson, and regrettably the pendulum has swung in a completely opposite direction. Because of the decreasing reimbursements, particularly from Medicare, physicians are limiting their practices or retiring at their prime. Yet, physicians cannot police themselves regarding excessive fees because of the threat of restraint- of-trade lawsuits.

What of the patients themselves? Expectations were set too high, fraud and abuse of the system abounded, the demand for new, more modern, expensive treatments escalated, and guilt-ridden families threatened health-care providers with lawsuits if "everything possible" was not done to keep a 95-year-old gravely ill parent alive. Over utilization of services, particularly emergency rooms, was rampant.

Just as with greedy physicians, greedy malpractice attorneys must likewise accept responsibility for escalating costs. Just how much is pain and suffering worth when a third of the amount awarded would be turned over to an attorney who has suffered not at all? Medical maloccurance is a fact of life. The human organism differs considerably from the mechanical device which might falter because of poor workmanship. Unsubstantiated malpractice lawsuits, settled out of court because of the nuisance in defending them, are responsible each year for more malpractice premium payouts than actual amounts awarded in justifiable malpractice cases. A bad result has become the benchmark—not bad care. Such results have been mistakenly viewed by sympathetic juries as a deviation from an acceptable standard of care.

Forty years ago, it was practically unheard of for physicians and other health-care providers to advertise. How many health-care dollars are going into advertising alone? Does the provider with the biggest ad necessarily offer the best results? Is it fitting and proper in the health-care sector that a substantial portion of a physician's charges would go to providing bigger and better ads in local newspapers or on television? The Federal Trade Commission was clearly wrong in assuming that competition through advertising could be equated to better health-care delivery. Physicians and other health-care providers are not alone in this regard, as hospitals and malpractice attorneys are also heavy into advertising—a complete waste, in my view, of another portion of the health-care dollar.

Insurance carriers and third-party payers are perhaps the biggest culprits in the great American health-care scam. The number of insurers including HMOs, stock companies, and mutual companies have skyrocketed, as have the number of their employees and their profits. They want to sell you back your own patients at a discount, after taking their cut. Medicine has become options trading, much the same as "pork bellies." Chairman Leonard Abramson of the U.S. Healthcare took $17 million from the pool of health-care dollars over the last five years according to *Forbes Magazine*. The *The Wall Street Journal* suggests that it was significantly more. Health-care dollars are finding their way, in ever increasing dividends, into the pockets of "shareholders." In addition, it is not unusual for a physician, in the course of a single week, to have to speak to 35-40 different nurse reviewers and physician reviewers, both in quality control and utilization. Many of these reviewers are poorly experienced in current clinical care and have left active nursing or medical practice too many years earlier to be in a position to make viable judgments about how long a patient should remain in the hospital or whether or not a patient should be cared for on an outpatient and inpatient basis. And behind these reviewers are highly paid actuaries supplying them with the data necessary to make such decisions. You can't reduce patient care to a stock set of numbers. Utilization review and quality-of-care issues properly belong in socially responsible hospitals where physicians volunteer their time to carry out these functions. Such is the mandate of the Joint Commission on Accreditation of Health Care Organizations.

Some third-party payers carry this entire problem one step further in that they hire outside groups whose sole purpose for existence is quality and utilization review. Thus, the health-care dollar is further diluted. Third-party payers will argue that this whole process saves money. Yet, we have not seen a single reduction in third-party premiums for medical care, while physician incomes are down 20-40% across the board. In point of fact, it saves physician and hospital costs while paying for large insurance company staffs. If it saves so much money, then we should receive a rebate on our premiums.

Another area of grave concern is in the burgeoning salaries of hospital administrations over the past 10 years. Administrative costs in hospitals have risen to an overwhelming 35% of the hospital charge. Recent cuts in hospital staffs have been primarily from the nursing and patient-care sector, while administrative jobs have been relatively secure. Hospitals have been slow to recognize over the past five to eight years the need to transsize their institutions toward outpatient and short-stay care.

Bureaucratic regulators take no less responsibility for the skyrocketing costs. Reduplications of inspection, review, certification, and accreditation are rampant. Hospitals and hospital laboratories may be inspected by as many as nine to 12 different organizations: Health and Human Services, Medicare, OSHA, the State Department of Health, the local Department of Health, the Fire Marshal, the Nuclear Regulatory Commission, Joint Commission on Accreditation of Health Care Organizations, Hospital Cost Commissions. Each of these organizations must be staffed. Each of these organizations must be paid. Each of these organizations takes yet another bite out of the health-care dollar. Yet, despite the tremendous reduplications of effort, human error remains. Adverse events still occur and expenditures to satisfy these organizations both in time, effort, and money escalate annually. Some of the nation's best physicians and nurses now do little more than spend their time documenting the necessary information required for all of these reviewers. In any given health-care institution today, one has the impression that there are almost as many individuals uninvolved in direct patient care as provide it. The Kimberly Bergalis case was a classic example of hysteria massively increasing health-care costs. It is most regrettable that one mentally and physically ill dentist could have willfully destroyed the lives of some of his patients and yet at the same time, after over reactive and hysterical Congressional hearings, added so much totally unnecessary expense to dental care. Will all the extra effort, cost, and monitoring keep the next sick dentist (or other health-care provider) from doing the same thing? I think not.

The escalating costs of drug and pharmaceuticals as well as medical equipment have significantly added to the expense involved in health-care delivery. Pharmaceutical companies are attempting to rapidly recoup moneys spent for research and development; large sums are spent in detailing drugs and pharmaceuticals in a very competitive market; the industry's executive salaries have escalated astronomically while perks, bonuses, and runaway stock options abound. A review of the Forbes list of the highest paid executives clearly indicates that many are in the health-care business. Bear in mind that each of these salaries and extras are paid for in some way by the health-care premium.

And last but not least, there is Congress. Congress has known for many years that 38 million Americans do not have health insurance. President Clinton does deserve credit for bringing this issue to the fore. But the lack of health insurance does not equate to the lack of health care. Despite the existence of welfare benefits and Medicaid, several million Americans have had no insurance at all. Others, because of loss of jobs, have simultaneously lost their insurance benefits. Continuity of health-care insurance is probably the single most important factor in the health-care debate. It is people who have had health insurance and lost it who are most likely to neglect themselves in time of need. It is on these folks that Congress should focus—and do so *now*.

The triumvirate of quality, cost, and access must hold sway. Quality *can* be preserved while cutting costs. Access to health-care facilities in a mobile society can and mus be achieved. A redistribution through cooperation is imperative. So let not one American shirk from his or her role in creating the health-care financing mess. Mr. Clinton is clearly wrong in suggesting that we have a health-care crisis. American medicine remains strong and viable and with a complete reassessment of all aspects of health-care financing, together with the assumption of individual responsibility, will continue to remain the best in the world. To paraphrase a great president: Ask not what health care can do to improve before asking how *you* can improve health care.

Raymond E. Sullivan, M.D., F.A.C.S.

Waterbury

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50 Years Ago

From *The Connecticut State Medical Journal*

January 1945

Recent Advances in the Treatment of Heart Disease

LOUIS H. NAHUM, M.D. AND SIMON D. DOFF, M.D., *New Haven*

Dr. Nahum. *Associate Professor of Physiology, Yale University, Attending Physician, New Haven, Grace and St. Raphael's Hospitals*

Dr. Doff. *Assistant Attending Physician, Grace Hospital*

JOHN BUNYAN, almost three centuries ago, wrote, "Physicians get neither name nor fame by pricking of wheals or picking out thistles or by laying of plasters to the scratch of a pin; every old woman can do this. But if they would have a name and a fame, if they will have it quickly they must do some great and desperate cures. Let them fetch one to life that was dead; let them recover one that was born blind to see or let them give ripe wits to a fool. These are notable cures and he that can do them, if he does them first he shall have the name and fame he deserves, he may lie abed until noon."

I. Contributions of Surgery

A. PATENT DUCTUS ARTERIOSUS

Pathologic Physiology—The successful closure of the patent ductus arteriosus by Gross and Hubbard[1] was followed by a study of the pathologic physiology in humans,[2,4] and in animals with experimental patent ductus[2,3] by new methods. In individuals without endocarditis, the flow of blood was found to occur only from the aorta into the pulmonary artery. This shunted an unusual amount of blood into the lungs, reduced the vital capacity and prolonged the circulation time significantly. Because of the increased venous return to the left ventricle, its output was greatly increased amounting in most cases to from two to four times the normal. It is this extra burden on the left ventricle which in time leads to cardiac failure and venous engorgement. The increased pulse pressure in many cases is explained by the dynamics of the circulatory fault.

The increased left ventricular output increases the systolic pressure while the aortic pulmonary communication tends to lower the diastolic pressure to a variable point approaching the diastolic pressure in the pulmonary artery. Comparable experiments in dogs showed similar results, but there was no change in mean blood pressure.[3] In man, the pulse pressure is wide due mainly to a low diastolic pressure.[2] Following closure of the patent ductus, there is an increase in the diastolic blood pressure, the circulation time becomes normal and the cardiac dilatation disappears.

Important deductions concerning the pathologic physiology have come out of observations made before and after the operation on the cases with subacute bacterial endarteritis.[5,6] Reverse eddy currents may carry a certain amount of infected material into the aorta. This is most likely to be possible when the ductus is short. In favor of this assumption are repeated observations concerning the amazing rapidity with which the peripheral blood culture become negative following operation in certain cases.[5,6]

The address of the Retiring President presented at the Annual Meeting of The New Haven County Medical Society, New Haven, April 1944. Reprinted from the *Connecticut State Medical Journal*, January 1945.

The chief route through which the blood stream is seeded is by way of the pulmonary artery into the dilated vascular bed of the lungs and from here to the left heart and general circulation.[2,5,6] Postoperatively, the factors responsible for the dilatation of the pulmonary capillaries are eliminated.[6]

Natural History of the Unoperated Case—The size of the ductus appears to bear a relationship to the general health and length of life. A large ductus may impair the general health and shorten life considerably.[7] The oft quoted figures of Abbott[8] show that of 92 fatal cases of patent ductus arteriosus, in the absence of other cardiovascular congenital anomalies, 43% died of cardiac failure and 30% died of subacute bacterial endarteritis. Recent statistical analysis in adults indicates that there is an average reduction in life expectancy of about 23 years in men and 28 years in women.[9] Death was caused by subacute bacterial endarteritis in over 20% and by congestive heart failure in nearly 30%. In addition, operation on adult cases revealed pulmonary aneurysms in 15% and the frequent occurrence of atheromatous and calcareous placques. For the above reasons, it is obvious that operations should be performed when possible on every patient with a patent ductus during childhood.[9,12]

Improvements In Operative Technique—The success of the first operative closure of the patent ductus by Gross and Hubbard led to its trial in many other cases including those complicated by infection in the patent ductus. It was found that infected cases required more gentle manipulation during ligation[6,10] and as the courage of the operators grew after Gross's lead, ligation and division of the ductus became a common practice. Another approach posterolaterally and transpleurally was suggested[3] but it is doubtful if it will ever rival the original operation devised by Gross.

It was at first believed that the infected patent ductus arteriosus should not be operated upon due to the danger of manipulating the infected, thrombotic blood vessels. This is chiefly one of embolus production and hemorrhage.[11] Touroff[6] demonstrated that ligation could be performed and the patient cured in a majority of the cases. Sufficient evidence has now been accumulated to show that ligation or division of the infected ductus is urgently indicated.[6,7,10] These reports take on increased significance as the study of the mechanism of action of surgery will, it is hoped, yield information on the nature of bacterial endocarditis.

B. ARTERIOVENOUS ANEURYSM

The war has served to place added emphasis on problems resulting from injury to the heart and blood vessels and some of them can be mentioned here.

Like the patient with patent ductus arteriosus, the untreated ease of arteriovenous aneurysm may develop congestive heart failure, the effect upon the circulation being, for the most part, similar to that of patent ductus arteriosus. This has been well known for many years.[15] Although spontaneous cures have been reported,[16] treatment by ligation and excision is recommended to avoid the serious complication of congestive heart failure. Fortunately, even though this complication becomes established, it is completely relieved by closure or excision of the fistulous communication. Complete cure has also followed excision of arteriovenous aneurysms complicated by infection and septicemia;[13,14] although this procedure was also believed to be contraindicated in the presence of infection.

C. PENETRATING WOUNDS OF THE HEART. CARDIAC TAMPONADE

The United States Army has recently published directions for the diagnosis and treatment of heart wounds with associated cardiac tamponade.[18] These are:

(a) Aspirate the blood from the pericardium by the costo-xiphoid route, if possible.

(b) Repeat if there is a recurrence.

(c) If it occurs again, perform a cardiorrophophy through an extra-pleural exposure.

These directions were prepared for medical officers in the Army by E.A. Graham, I.O. Bigger, E.D. Churchill, and Leo Eloesser.

Blalock and Ravitch[19] support this view and have published the results of their experience.

The diagnosis is based on the observation of rapid enlargement of the cardiac outline, absence of pulsations fluoroscopically, disappearance of heart sounds, marked increase in venous pressure, and signs and symptoms of collapse.[18,19]

D. OMENTAL TRANSPLANTS IN CORONARY SCLEROSIS

Stimulated by the observations of O'Shaugnessy[22] and others, Friedbacher has further elaborated this work in experimental animals. He noticed that while muscle grafts become quite firm and interfere with heart action, the omental graft remains pliable and large arterial anastomoses are formed.[21] Despite excellent graft of the omentum and the formation of numerous anastomoses of good size, infarction following division of one coronary artery could not be prevented and division of the second coronary led to the death of his animals in ten to thirty minutes.[20]

E. CHRONIC CONSTRICTIVE PERICARDITIS

Follow-up studies of cases of chronic constrictive pericarditis[23,24] have been extended over a sufficient time to furnish satisfactory analysis of the end result of surgical treatment. The mortality of the operation calculated on the basis of 28 cases submitted to surgery is 18%.[24] Blalock and Burwell[23] also encountered a relatively low mortality rate. That not all patients need surgery has been proved by the experience of Harrison and White,[24] but indications for surgical intervention are clear cut in cases of constriction associated with pyogenic infection and in the case of marked constriction in patients with tuberculosis whether active or inactive. Where the symptoms of constriction are moderate and due to an active tuberculous infection, it is advisable to delay operation until the infection becomes inactive.[23] Prognosis of the untreated case is associated with a mortality of about 80%, whereas operation reduces the mortality to from 50 to 60%.[25] Of 28 operated cases, Harrison and White list 14 as cured clinically by surgery.[24] Tapping of serous cavities, low salt and fluid intake, and the use of diuretics are helpful when disability is mild and for the preoperative preparation of the severe case. Digitalis is not generally indicated except in the presence of auricular fibrillation and when there is myocardial weakness due to atrophy.[23]

F. APPROACH TO INTRACARDIAC SURGERY

The field of cardiac surgery will probably be considerably broadened by the perfection of instruments for intracardiac visualization, Endoscopy has now invaded almost all body cavities and in each instance has contributed to direct therapy and to our concepts of physiology and pathology. Recently, Harken and Glidden[26] have devised a new cardioscope which it is hoped will stimulate the development of more efficient instruments for the examination of the interior of the heart.

II. HYPERTHYROIDISM

THIOUREA AND RELATED COMPOUNDS

Early in 1943, Astwood introduced the new drugs, thiourea and thiouracil, for the treatment of Graves Disease,[28,29] the practical application of which followed studies of the effect of these and related compounds on the activity of the thyroid gland.[28,32] Thiouracil was found to be the most potent and the least toxic and has been submitted for clinical trial in a large number of cases of hyperthyroidism. The drug inhibits the formation of thyroid hormone, and produces a fall in B.M.R. and a decrease in protein-bound blood iodine in cases of thyrotoxicosis within four weeks.[28,30] In fact, given in sufficient dosage, one can obtain a drop of the B.M.R. even to the level of myxedema. The disturbed metabolism of calcium, phosphorus and creatinine is corrected. Exophthalmos is not relieved. The patient, however, is entirely relieved of the symptoms of hyperthyroidism. In the doses recommended by Astwood, signs of intolerance to the drug are rare, consisting for the most part of a garlic odor to the breath and an occasional erythematous eruption of the skin. In larger doses ranging up to 0.8 gram, t.i.d. used by some clinical investigators, agranulocytosis, fever and more pronounced skin manifestations have been reported.[31]

It is to be expected that if thiouracil relieves hyperthyroidism, it would be employed not only as a permanent treatment but also as a preoperative measure in severe hyperthyroidism. Bartels[61] has reported its use to lower the metabolism preoperatively in eleven severe cases of hyperthyroidism and found it an excellent agent in this regard. However, the hyperplasia resulting from the use of thiouracil led to increased bleeding during the operation. It should here be pointed out that the administration of iodine prior to thiouracil greatly retards the response because of the increased thyroxin in the gland, but when used in conjunction with thiouracil may produce some involution. Astwood[29] has suggested the application of the drug in the treatment of thyrocardiacs. Because thiouracil is so effective in producing the myxedema state, doubtless its use will be extended to patients suffering with congestive heart failure and angina pectoris.

The following are two case reports of hyperthyroidism complicated by diabetes mellitus and paroxysmal auricular fibrillation which made surgical intervention especially hazardous.

CASE I

I.W., female, age, 55. This patient had been ill for 13 years with diabetes, hypertension for four years and was having recurrent attacks of rapid irregular heart beat for two years.

She was thin and undernourished. Slight enlargement of the right lobe of the thyroid was noted. No abnormal occular signs were present. There was fine tremor of the fingers. The cardiac apex was in the anterior axillary line. The sounds were loud, rhythm was regular, A2 markedly accentuated. The blood pressure was 200/80, weight 94 lbs. On admission to the hospital, the B.M.R. was plus 54, R.B.C. was 3,930,000, W.B.C. 13,350 and Polys 74%. Blood sugar was 120, N.P.N. +43. She had a negative Wassermann. Urine—Sp. Gr. 1040. Alb. ± to 4+, sugar ± to 4+. W.B.G numerous with clumping. The patient was receiving digitalis, quinidine sulphate, diabetic diet and Insulin. On admission, she continued to have recurrent attacks of auricular fibrillation of short duration which were controlled by quinidine. The ventricular rate was 128. Thiouracil was administered in the doses recommended by Astwood, 0.6 grams daily for three days and thereafter 0.1 grams.twice daily. The response was slow but steady. The B.M.R. declined to +23. The attacks of paroxysmal fibrillation disappeared after treatment for one month. The diabetic state, however, was not greatly altered. The gain in weight and the general feeling of well being and loss of inward tension was pronounced. However, the thyroid gland did enlarge somewhat.

CASE II

T.E., male, age, 51. For over a year the patient had frequent attacks of rapid heart beat coming suddenly and subsiding suddenly lasting variable periods of time. They left him weak.

He had nocturia and frequent urination during the day for about a year. There is a history of weight loss, although his appetite is good and food intake considerable.

The significant physical findings were: visible sclera above the iris, fine tremor of tongue and fingers. The right lobe of the thyroid was definitely enlarged and uniformly soft. The heart sounds were augmented, the rhythm was regular and the rate rapid. Blood pressure was 138/80—weight 117 lbs. On admission to the hospital, Hgb was 96% Dare. R.B.C. 5,090,000, W.B.C. 13,000 and Polys 78%. Urine: Sp. Gr. 1032, Sugar ++++. He was on a diabetic Diet c Insulin.

Thiouracil was started in dosage of 0.6 gram for three days and 0.2 gram daily thereafter. In 16 days, the symptoms of tachycardia, nervousness and irregular heart beat disappeared. The flushed skin gave way to a more normal pale hue. The sugar disappeared from the urine and the patient became symptomless. The B.M.R. in a month was +9.

III. Rheumatic Heart Disease

SULFONAMIDES

That there is a relationship between rheumatic fever and hemolytic streptococcus infection has been established and the largest group of primary attacks are know to follow infection with B. hemolytic streptococcus. Recurrences are often preceded by respiratory infections due to this organism in the large majority of cases.

The use of sulfonamide to prevent hemolytic streptococcus infections has been reported[35,36,62] and its value in the quiescent cases of rheumatic fever is measured by the degree to which such infection can be prevented. In an important study by Holbrook[62] on a large group of Army Air Force personnel, 1 gram of sulphadiazine given daily over long periods of time greatly reduced the incidence of hemolytic streptococcus infections and at the same time almost eliminated fresh and recurrent attacks of rheumatic fever. Once the streptococcus becomes implanted, the sulphonamides apparently cannot prevent occurrences of rheumatic fever or affect its course.

Coburn and Moore[34] treated quiescent cases of rheumatic heart disease who already had throat infections, when cultures from these patients yielded Group A hemolytic streptococcus by giving four to six grams of salicylates daily. Of 47 patients so treated only one developed symptoms of rheumatic fever. Of 379 controls 57 had recurrences. Thus it appears, if confirmed, that salicylates can prevent the rheumatic manifestations of hemolytic streptococcus infections.

Coburn[37] has carried his studies with salicylates further by studying the relationship of the blood salicylate level to the course of rheumatic fever in young soldiers. He administered larger doses of salicylates intravenously. A simple method for the determination of plasma salicylates is described. Twenty patients maintained at plasma levels of 359 to 400 micrograms / c.c. manifested prompt subsidence of rheumatic inflammation. Twenty patients with plasma levels below 250 micrograms per c.c., continued to manifest an active inflammatory process. The intravenous administration of sodium salicylate is required to obtain a rapid rise in concentration. Thirty-eight patients with rheumatic fever were treated with large doses of salicylates. None developed rheumatic valvular disease. If these findings are confirmed, they should be an important addition to our attack on rheumatic fever and the resulting cardiac damage.

The knowledge that a reduction in blood prothrombin level occurred in human beings[59] and animals given large doses of salicylate over a long period of time introduces an additional problem in treatment. Vitamin K prevented the drop of blood prothrombin if it was given before this drop occurred but it was not effective in the treatment of patients in whom the prothrombin level had already been considerably decreased.[60] It would, therefore be rational to give Vitamin K together with salicylates especially when large doses are employed in order to prevent hemorrhagic phenomena.

IV. Anemia and Heart Disease

INFARCTION

Since oxygen supply is the determining factor in life and death of cells, the amount of blood supply to a heart already impaired by arteriosclerotic narrowing can assume critical importance. This has been strikingly illustrated in the accompanying case report in which the patient, following massive gastric hemorrhage, developed myocardial infarcation. Treatment consisted of immediate transfusion with large amounts of whole blood.

CASE I

A.M., male, age 52. This old sewer inspector was well until three days prior to hospital admission when he suffered severe hematemesis, fainting and passage of tarry stools. Shortly thereafter he developed severe precordial pain. He was brought to the hospital in shock. This patient had a gastric hemorrhage 23 years ago. Examination revealed signs and symptoms of shock. The heart sounds were distant and the rhythm regular. No murmurs. The lungs were clear. There was soft abdominal distention. On admission the blood count showed R.B.C. 1,300,000, Hgb. 48%, W.B.C. 15,800, Polys 84 %. Sugar 157, N.P.N. 42 ECG revealed evidence of infarction involving the posterior right and left ventricles. Course: The patient was placed in shock position. He was complaining of slight chest pain during most of the second day. On the first and second day he was given 1000 c.c. of five percent glucose in saline and 500 c.c. of whole blood with 5 c.c. of Adrenal Cortical Extract. On the third he was acutely ill with high fever. Daily blood transfusions were given during the first week and he was put on a Sippy diet on the third day. There was a progressive rise in R.B.C. and hemoglobin. No further chest pain was experienced. At the time of discharge the R.B.C. was 3,900,000 and Hgbn. 65%.

V. ANGINA PECTORIS

Several reports of angina pectoris in association with anemia have been published. That of Bernstein and Ginzburg[40] is typical of the experience of others. These authors have presented a report of a case in which status anginosus occurred in a patient with severe anemia due to the presence of malignancy of the gastrointestinal tract. Transfusions of whole blood completely relieved the patient of pain.

VI. CONGESTIVE HEART FAILURE

While the number of reported cases of congestive heart failure precipitated by anemia is small, we have encountered cases of heart failure associated with severe anemia in whom prevention of further loss of blood and transfusion have restored them to compensation when ordinary methods proved to be inadequate. The following case is illustrative.

CASE I

T.K., female, age, 43. For a year, this patient had dyspnea on moderate exertion. For the past two months, more dyspneic with onset of leg and ankle edema. Orthopnea came on two days ago. There is a history of dry cough for years which became productive in past week. No hemoptysis. There was a history of tarry bowel movement on the day of entry. No other episodes. The patient had been a known diabetic since 1938. Well controlled now. Periods regular. Diet, adequate. Was menstruating on admission.

Examination showed BP. 100/60, pulse 104, very pale, dyspneic, orthopneic. The neck veins were markedly distended. There was impaired resonance with diminished breath sounds in both lung bases and many coarse and fine moist rales throughout both lungs. The heart tones were weak. No murmurs were heard. The rhythm was regular. The apex impulse was in the anterior axillary line. The liver edge was easily palpable. There was pitting edema of both ankles and legs. The cardiologist felt that the patient did not have arteriosclerotic heart disease, the admission diagnosis, and the presence of free HCL in the fasting stomach eliminated pernicious anemia as a cause for the low blood count. On admission the R.B.G was 2,940,000, Hgb. 55%, blood sugar 65%, N.P.N. 22. P.S.P. excretion 67% in two hours.

The patient was digitalized, given ammonium chloride and theobromine. On the second day, 2 c.c. of Mercuperin was given intravenously and a tremendous diuresis led to much clinical improvement. Except for digitalis effect, the electrocardiogram was normal. X-ray examination of the chest showed pulmonary vascular engorgement and marked cardiac enlargement. Stools were negative for blood.

On the 20th hospital day, a history of menorrhagia of long duration was elicited. The patient had vaginal spotting in the hospital. Pelvic examination revealed a uterus the size of a two to three months pregnancy which contained several large myomata. D and C was performed with insertion of radium. Blood transfusions were given. The heart size diminished as was demonstrated by the serial roentgenograms of the chest. One year later, the patient was on normal activity without digitalis.

VII. THE HEART IN NUTRITIONAL DEFICIENCIES STATES

VITAMIN B

Freedberg and Blumgart[41] have described a case of heart disease with signs of vitamin deficiency in whom oral administration of thiamine chloride was ineffectual in combination with known therapeutic measures for heart failure. Their patient continued to fail until parenteral administration of Vitamin B complex together with thiamine chloride, 100 mgms daily was started, when recovery occurred with the most amazing rapidity.

Johnson et al[42] have shown that in healthy laborers, on diets deficient in Vitamin B, signs of B1 deficiency may appear in a few days. The reason for the early appearance of symptoms in persons doing hard work is that the increased carbohydrate metabolism uses up large amounts of thiamine. In patients with organic heart disease, anorexia and congestion of the gastrointestinal tract leads to impaired absorption as well as deficient utilization of Vitamin B. In many patients with congestive heart failure, signs of vitamin deficiency are usually present and are treated. However, in the absence of clinical avitaminosis in the patient in whom heart failure is not relieved by the ordinary methods, parenteral Vitamin B complex and thiamine chloride ought to be administered.

VIII. BACTERIAL ENDOCARDITIS

TRENDS IN THERAPY

It was early recognized that the sulfonamides would not produce the result which had been anticipated. The use of heparin with sulfonamides has also not yielded satisfactory results.

Penicillin had been used in bacterial endocarditis with such little benefit that the Committee of the Office of Civilian Penicillin Distribution at first thought it inadvisable to release penicillin for use in such cases. Loewe's[43] striking cures served to focus attention once more upon the possibility of cure with penicillin by employing much larger doses. Loewe, however, did not test the use of penicillin alone in bacterial endocarditis but combined penicillin with heparin. The febrile reactions from the use of heparin together with the considerable local discomfort resulting from the injection makes it desirable to reinvestigate the value of penicillin alone in bacterial endocarditis. Apparently, some of the early failures of penicillin in the treatment of bacterial endocarditis must be attributed not alone to the low doses used, mostly under 200,000 units daily, but also to the method of administration. It is known that blood levels following intramuscular injection of penicillin are not long maintained, but fall off quickly. Only continuous intravenous drip can maintain a high, constant level of penicillin sufficient to sterilize the blood.[44]

IX. DIGITALIS BODIES

Several new purified digitalis bodies have been made available. These are fully as effective as the preparations of digitalis leaves now in common use.

In considering criteria for the choice of any digitalis preparation in a particular case, one must take into account its properties along the following lines.

a. Absorbability.
b. Tolerance.
c. Rate of disappearance from the body.
d. Speed of action.

DIGITOXIN

Digitalin Nativelle has the advantage of complete absorption and speed of action when given by mouth. Due to rapid excretion of the drug it is not easy to maintain digitalization. Absorption is apparently as complete by mouth as by vein. By either route, 1.25 milligrams or 3 cat units is a full digitalizing dose.[45] The full effect is achieved in six hours or less.

CEDILANID

This preparation is characterized by a constancy of potency. Its action by the intravenous route is only slightly less rapid than digitoxin. Absorption from the gastrointestinal tract is not complete and larger doses are necessary to achieve full digitalization.45 For maintenance of constant digitalis effect, this drug is not as satisfactory as the digitalis leaf.

OUABAIN

When the need for full digitalization is most urgent, and the patient has not previously received digitalis, Ouabain is the drug of choice. It can be given by vein or by the intramuscular route. Eggleston advises that the dose be placed in 10 c.c. of fluid and five to 10 minutes be allowed for injection. The effect begins in a few minutes and reaches its maximum in about one hour. Ouabain is rapidly excreted, but is so slowly and irregularly absorbed from the intestinal tract that its oral use is contraindicated.

The advantage of the purified preparation lies in the more rapid absorption, greater speed of action and greater tolerance by the patient. The rapidity of excretion makes constancy of dosage difficult and successful treatment uncertain. Digitalis leaf remains the most satisfactory preparation for maintenance of physiologic digitalization in the vast majority of patients. It must not be forgotten, however, that an occasional patient is encountered who does not tolerate the digitalis leaf and in such a case only a purified preparation can be effective.

X. CORONARY OCCLUSION

NOMENCLATURE

The most precise pathological studies have revealed that subintimal hemorrhage is the cause of the sudden closure of coronary arteries in nine out of 10 cases and that thrombosis of a coronary artery is a rare phenomenon. For all practical purposes the term "coronary occlusion" has rightly replaced the term "coronary thrombosis" in the diagnosis of myocardial infarction.

PATHOLOGY

Recent investigation has revolutionized the diagnosis and the treatment of coronary occlusion. These studies were made possible by new methods of dissection and injection of the heart. We now know that complete occlusion of one or more coronary arteries may exist without giving rise to clinical signs or symptoms and without having produced myocardial damage. Persons suffering primarily from angina pectoris have, at postmortem, shown complete closure of a major coronary artery. Adequate collateral circulation prevents muscle necrosis. Thus one can have coronary occlusion without infarction.

CLINICAL

In the light of these findings our understanding of the clinical picture which may result during and after coronary occlusion has been clarified, and therefore the treatment can now be more intelligently planned. The classical picture of infarction is well known. Emphasis must then be placed on the importance of recognizing prodromal symptoms. Boyer[48] identified three patterns. (a) Sudden onset of pain characteristic of coronary occlusion where clinical signs and symptoms of myocardial infarction do not appear early. Some other diagnosis may be made. (b) Sudden onset of angina pectoris in a patient previously well. (c) Sudden increase in severity and frequency of anginal syndromes. The probability of imminent infarction should be considered in all such cases and measures to allow the formation of collateral circulation and avoid infarction instituted. These include bed rest, light diet, avoidance of tobacco, and the administration of vasodilator drugs.

In such cases it is hoped that enough collateral circulation may be engendered or already exists to prevent necrosis. Two to three weeks of rest is usually sufficient.

XI. MYOCARDIAL INFARCTION

The treatment of the case with myocardial infarction has been outlined in two excellent contributions[49,51] about as follows:

(a) Reduce the work of the heart by absolute mental and physical rest; ie, through the use of morphine and atropine. Reduce caloric intake.

(b) Increase the oxygen supply by the oxygen tent or B.L.B. mask and by employing vasodilator drugs; eg, aminophylline, theobromine, papaverine.[50]

(c) Maintain cardiac nutrition by means of vitamins added to the diet and, in the presence of anemia, by transfusion of whole blood.

(d) Prevention of complications;

(1) Ectopic rhythm by means of barbitrates, quinidine, papaverine.[50]

(2) Distension.

(3) Thombosis of leg veins.

(e) Treatment of complications; eg

(1) Arrhythmias by quinidine.

(2) Adams-Stokes syndrome by adrenalin.

(3) In syphilitics discontinue treatment.

(4) Congestive heart failure by mercurial diuretics and digitalis.

(5) Shock. Paredrine by hypo may be effective.

XII. Angina Pectoris

Riseman[63] has divided all cases of angina pectoris into three major groups according to their response to nitroglycerine. Group I comprising twenty per cent are marked reactors. Group II are moderate reactors, some thirty-three per cent. Group III, the remainder, forty per cent, have little or no response to nitroglycerine. In a given period of time, the highest mortality occurred in patients of Group III. Riseman studied the effects of sixty-eight different methods of chemical physical and surgical treatment and we may now be guided by his results as well as by personal experience. The routine treatment of angina pectoris should then consist of:

(a) Elimination of precipitating factors such as walking, heavy work, excitement, cold.

(b) Elimination of basic factors such as hyperthyroidism, anemia, polycythemia, obesity.

(c) Meditations—nitroglycerine, Theobromine, sedatives, aminophyllin, quinidine for arrhythmias.

The recent claims for testosterone propionate as a therapeutic agent in angina pectoris have not been substantiated.

XIII. Sudden Death Due to Aminophyllin and Mercupurin

Examination of reports of sudden death "due to" Aminophylline and Mercupurin fail to disclose conclusive evidence for the claims. Since the cases reported all had severe heart disease or were otherwise critically ill and sudden death is a frequent complication in such cases regardless of treatment, the intelligent use of such important agents should not be discontinued on the evidence presented.

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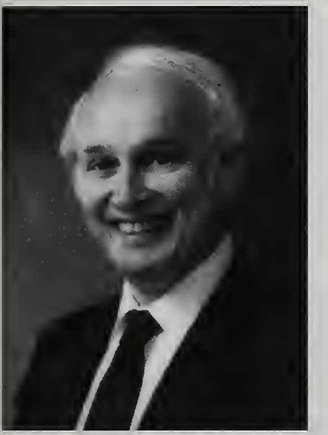
A Day in the Life of Charlotte O. Remaniss, M.D.: The Story Continues



When we left Dr. Remaniss at the end of the first episode, appearing in the December issue of *Connecticut Medicine* (vol. 58, no. 12), it was Tuesday, December 3, 2011. It was only a little after 11:00 a.m. Dr. Remaniss, employed by MegaHealth Plan, had started her day at 8:00 that morning. She had managed to see one patient, briefly, during the three hours she had been on duty. Though one could hardly say that the day had been going well so far, it would be equally difficult to characterize the day as being especially unusual.

"Com," Dr. Remaniss spoke clearly, "dial Simon Smeilknot."

Waiting for the electronic device to verify her voice as one that had access to MegaHealth Plan's Internal Affairs and Fraud Investigation Unit, Dr. Remaniss occupied the seconds by thinking about how absurd it was that the televideo required being asked to "dial." No one had "dialed" anything for ages. "Why not use 'sequence' or 'punch up' or, better yet, nothing at all," she mused. "We all have walkaround numbers hardwired to wherever we are, so why is there any need other than to use the name we want to reach. Just too easy. I suppose."

"Caregiver? Are you daydreaming," Simon said without any emotion. Then, more loudly, "Caregiver!"

"Simon, I'm sorry. I'm afraid I was wandering. I hope I haven't kept you waiting." Dr. Remaniss looked deeply into Simon's eyes, sucked further and further into their empty depths. She decided that he hasn't taken any lasting offense, due more to her irrelevance than to anything else. Offended, herself, Dr. Remaniss focused on the tip of his nose, the better to remain fully alert. Simon was dangerous.

"Caregiver, time has been wasted on your self-esteem training. You place no value on your services. You live on MegaHealth Plan's beneficence, but you do not honor your responsibility to yourself, to your Careteam members, to MegaHealth Plan, and to the millions of investors we sustain. You lead my list. Your behavior is a continual and subversive affront. Every morning, first thing in the morning, I personally run your tape through the Fraud Analysis System. I know that all of you think you have the system figured out. Do something within five minutes, and you believe the system is not sufficiently sensitive to detect your behavior. All of you are wrong."

"Simon," she began slowly and in marked contrast to Simon's rush of words, "Simon, I'm not sure I know to what you are referring You say this occurred yesterday? Let me see, now." Dr. Remaniss was trying to buy time.

"Let's stop the nonsense, Caregiver. We both know that you sutured dorsal cuts on Ard Thymes' left index and middle fingers. You felt sorry for him, and you billed only for one. Caregiver, that is fraud! You know VERY well that our insureds are each capitated for their individual healthcare needs; that Mr. Thymes has exceeded his annual allotment. I want you to know, Caregiver Remaniss, that, first, we have already corrected Mr. Thymes' account. Second, the Fraud Analysis System has assigned you an additional five demerits, bringing your total during the last quarter to twenty-seven. You know what that means," Simon smiled, tight-lipped, the upturned corners of his mouth betraying his name.

"Yes, Simon, another compulsory hearing before the Board of Select Senior Electors. When and where," she asked, feeling lonely and abandoned by her former colleague. "Simon, don't you remember the trenches? What it was like to be a doctor? I know they more than doubled your income and gave you a quota to fill, but is it really necessary for me to endure the BOSSE? Please, Dr. Smeilknot ..."

Incensed, Simon, who did not wish to be reminded of his days manning the bulwarks, responded in clipped, even tones. "Tonight. Seven, sharp. Conference Room 1. Any com station available. Goodbye, Charlotte."

Dr. Remaniss wondered whether it was a goodbye to end the call or a goodbye to her not-so-illustrious career at MegaHealth Plan.

Theodore Zanker, M.D.
President

The Coming Brave New World

ROBERT U. MASSEY, M.D.

"THE Future of Gene Therapy in the Treatment of Human Disease: Designer Genes in the 21st Century" was the long title of the Stewart T. Hamilton Leadership Conference for health-care professionals that was held in Avon last October. Those of us who planned the meeting were not disappointed in either the turnout or the intellectual quality of discussion that the topic provoked. Members of the audience were awed by the elegance of the science, troubled by the legal and ethical implications, and worried about the economics. The questions were polite, but in the private discussions afterward the unease was palpable. "Who needs it?" was the question I heard most often, but mine was not a fair sample.

The Human Genome Project is big science, or rather a big job in technology. Like making a very detailed map of the United States that would include every cross street, every building, the genome project is a kind of cartography that shows off our technologic skill, but there will be no real surprises, only filling in blank spaces with stuff we already know is there. The possibility of surprise, Lewis Thomas once said, is what makes for real science. On the other hand, the supercollider project, now no longer funded, would surely have produced surprises about the ultimate structure of matter; that would have been real science, adding to our understanding of the fundamental structure of the universe. Making lists, as in the genome project, naming and cataloging genes, seems like the descriptive biology that our basic scientists have so frequently scorned. It is, however, the kind of knowledge that Francis Bacon described, and of which he wrote, "Knowledge is power."

"Mere power and mere knowledge exalt human nature but do not bless it," Bacon also wrote, and somewhere reminded us that science, through its uses, has always a dark side. Recently Ruth Hubbard has written questioning the assumptions by which the proponents of the Human Genome Project have persuaded Congress to vote millions in its support.[1] Francis Collins, the director of the project, "...the largest organized biological research effort to date...," she wrote, "characterize[s] that project as the noblest effort humans have ever embarked on, because it will allow us 'to read our own blueprint.'" We must concur with her assertion that "As a biologist, I cannot agree that human beings (or indeed other organisms) are constructed after 'blueprints' that we can read."

The story of a life can hardly be read, or predicted, in a genome. It takes little imagination to picture to ourselves the uses to which these blueprints might be put, especially since the knowledge of the map will be coupled with a technology, now rapidly growing, that will enable us to change the map at will. What amazing power such knowledge will place at the disposal of those nations of the world with the resources to expend on their use. What opportunity to abuse! Dr. Hubbard writes, "Not to worry, the advocates say: 'We' can take care of such problems by devising appropriate legislation."

Some of us, who take a darker view of the unregenerate nature of our species, see in this project a veiled effort to resurrect the eugenics movement that swept the West in the early decades of this century and led through devilish pathways to doctrines of Aryan superiority and the Nazi horror. As with the genome project, the intentions of the proponents of "scientific" breeding of human stock were not evil, only naive. In this country the best we managed to do was sterilize "defectives." But now with our growing skill in genetic manipulation in this technologically elegant but ethically weak world at the end of the 20th century, we are much closer to Aldous Huxley's *Brave New World* than to George Orwell's *Nineteen Eighty-Four.*

"To know or not to know our genes, that is one question. The other is what to do with such knowledge," Dr. Hubbard concludes. The same question might have been asked when we found how to release the energy in the atom's nucleus. Our knowledge, Bacon wrote, must be "For the uses of life."

ROBERT U. MASSEY, M.D., Professor Emeritus, Division of Humanistic Studies, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington.

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This Month's Reading in Review

TIMOTHY B. NORBECK

Only one Congressional race in this century has been closer than the race in Connecticut's 2nd District in which Representative Sam Gejdenson defeated Ed Munster by just four votes.... In New York some 84 years ago, Charles Bennett Smith defeated De Alva Stanwood Alexander by a single vote.

New York Times (20 November 1994)

"I think there is a possibility of a third party in '96. I think it would be wonderful." Colin Powell, who will not reveal his party affiliation or any plans to run for president, addressing a Cleveland audience.

Newsweek (28 November 1994)

According to the Bureau of Labor Statistics, in 1993, 50% of full-time employees in large/medium private companies were enrolled in fee-for-service health plans; 26% were in PPOs; 23% were enrolled HMOs and 1% were in exclusive provider plans.... In 1991, 67% were enrolled in fee-for-service plans, 17% were in HMOs, and 16% were enrolled in PPOs.

USA Today (16 November 1994)

Medical inflation in 1993 was the lowest in seven years and among the lowest in more than three decades.... Federal health officials reported on November 22 that Americans spent an average of $3,299 per person on health care in 1993, or $205 more than the previous year.... The total bill for 1993 was $884 billion, or 7.8% more than in 1992.... HCFA officials say that it was the slowest rate of increase since 1986 and the third-lowest since 1960. NOTE: The increase in hospital expenditures slowed to 6.7% from 10.7% and to 5.8% from 10.3% for physician spending.

New York Times (27 November 1994)

In 1994, lawyers totaled 57 in the U.S. Senate and 181 in the House for a total of 238 (just 30 short of having a majority).... In 1995, lawyers will number 54 in the Senate and 170 in the House for a total of 224....Physicians increased their number from two to five.

Congressional Quarterly (12 November 1994)

"Johns Hopkins Medical Institution researchers have found that performing CPR on high-risk patients whose hearts have stopped beating is often not cost-effective. Forty-seven percent of such patients survived, with post-arrest care costing $226,200 to $888,600 per patient. Ten percent of those patients were eventually discharged from the hospital; 5% survived more than two years."

Washington Post (16 November 1994)

According to a new General Accounting Office report, spending on Rx drugs was 8.1% of total U.S. health-care spending in 1990, compared to 8.2% in Sweden, 16.8% in France, and 21.3% in Germany.

Investor's Business Daily (10 November 1994)

"The Los Angeles Trial Lawyers Association announced on November 14 that it is changing its name to Consumer Attorneys Association of Los Angeles.... Actually the LA law group did some polling and was aghast to discover that three times as many 'people thought trial lawyers represented criminals rather than consumers.'"

Wall Street Journal (15 November 1994)

Only in America: The inmate who won the right to conduct Satanic rituals in federal prison now complains that authorities haven't provided him a black candle for the service.... His lawyer also said that officials forced his client to conduct his Halloween service in the afternoon rather than in the evening which he preferred.

But a U.S. District Judge said he won't let the inmate dictate to prison officials.... and he is reconsidering his ruling which allowed the rituals because "Satanism may not be a religion." An Assistant U.S. Attorney said the authorities are trying to locate a black candle.

From a news report in the *Rocky Mountain News* and published in *Fortune* (12 December 1994)

TIMOTHY B. NORBECK, Executive Director, Connecticut State Medical Society.

From the Executive Director's Office

SUMMARY OF PROCEEDINGS CSMS HOUSE OF DELEGATES—SEMI-ANNUAL MEETING

RAMADA INN, MERIDEN—NOVEMBER 16, 1994

Reports and Addresses

The House received reports, addresses and/or remarks from the President, the Council, the AMA Delegation, the Executive Director, Connecticut Medical Political Action Committee (COMPAC), Connecticut Medical Insurance Company (CMIC), M.D. Health Plan and on the Office of Health Care Access (OHCA).

PRINCIPAL ACTIONS TAKEN

(a) *Report of the President,* Theodore Zanker, M.D., New Haven, The House voted to accept the report of the President. He stated that most of his activities were reported in his monthly column in Connecticut Medicine. He stressed the importance of the Connecticut Political Action Committee (COMPAC) and urged all members of the House to support the program. He reported on his meetings with state and federal representatives on managed care issues and encouraged members to stay abreast of the changes being proposed.

(b) *Report of the Council,* Joseph C. Czarsty, M.D., Oakville. The House voted to accept the report of the Chairman of the Council, which reviewed the activities of the Council since the last meeting of the House of Delegates. Minutes of the interim Council meetings have already been published in Connecticut Medicine. Special emphasis was given to the reports of CPRO, M.D. Health Plan, CMIC and the establishment of a Statewide Physician Health Program. The Council also submitted a budget for 1994 and the action taken on the Council's recommendation appears elsewhere in this summary.

(c) *Report of AMA Delegation,* Edward A. Kamens, M.D., Fairfield. The House voted to accept the report of the AMA Delegation. The report contained the principal actions taken at the 1994 Annual Meeting of the AMA House of Delegates, which included information on ethical guidelines for physicians dealing with managed care plans, health systems reform, due process accorded a physician accused of any hospital medical staff bylaws infractions, numerous coding issues which were referred for study by the CPT editorial panel and many other issues. Robert McAfee, M.D. from Maine was installed as President.

(d) *Report of the Executive Director*, Mr. Timothy B. Norbeck, New Haven. The House voted to accept the report of the Executive Director, which appeared in the December issue of Connecticut Medicine.

(e) *Connecticut Medical Political Action Committee* (COMPAC). Roger S. Beck, M.D., Wethersfield, Chairman of the Connecticut Medical Political Action Committee, gave an update on the current status of COMPAC. He reported that the goal for 1995 is to increase current membership well beyond the current 7% of CSMS membership. He stated that each year legislative representatives at the State Capitol face an onslaught of legislative proposals that increase government regulations that interfere with the practice of medicine, expand the scope of practice allowed for other medical care personnel and change requirements imposed on physicians for many broad based medical care programs. He further stated that without unity, physicians are at the mercy of groups whose goals are contrary to medicine's interest and the interests of the patients. The report was received as information.

(f) *Report on Connecticut Medical Insurance Company* (CMIC). Sultan Ahamed, M.D., President and Chairman of the Board of Connecticut Medical Insurance Company (CMIC) reported that the company was celebrating its 10th anniversary and that it was the CSMS leadership that had the vision to petition the State Legislature to grant a charter for the formation of CMIC. He reported that as CMIC enters its second decade of operation, it has the resources and capabilities to respond to the challenges facing CSMS physicians today. CMIC membership has grown from 925 members in 1984 to over 2,800. It was reported that 1994 rates will remain unchanged and that the fourth and largest policyholder dividend has been declared by the Board. He stated that only a physician owned and directed insurance company can fully respond to the challenges facing CSMS members today.

(g) *M.D. Health Plan* (MDHP), Vincent J. Catrini, M.D., Middletown, Chairman of the Board of Directors of M.D. Health Plan, discussed proposed merger with Health Systems International (HSI). He stated that before any final action was taken the shareholders will receive complete information on the proposal and a prospectus. Two-thirds majority will be required for this merger to take place. Malik Hasan, M.D., CO-CEO of Health Systems International, addressed the House of Delegates and responded to questions.

(h) *Office of Health Care Access* (OHCA), Howard Meridy, M.D., a member of the Health Care Reform Review Board, submitted a report outlining the charge to this Board. He stated that the Board will be assisted by an advisory panel of over 50 consumer, payer, and provider representatives. OHCA is charged with developing a report for the General Assembly by January 1, 1995 and a consulting firm has been hired to develop this report. It was reported that failure of federal reform will limit Connecticut's ability to implement reform on its own. The OHCA Board is also charged with establishing a comprehensive data collection system to be run by the University of Connecticut Health Center.

(i) *1994 Budget.* The House voted to approve the budget for 1995, as prepared and recommended by the Council, and that the dues be set at $340.00. The last dues increase of $25 was in 1988.

(j) *Resolution re Medicaid Reimbursement.* It was voted to rescind the following resolution that was passed at the last Meeting of the House of Delegates. This action was based on information that was not available at the time the action was taken.

"Resolved, that the Connecticut State Medical Society immediately initiate legal action against the State of Connecticut to rectify the Medicaid reimbursement policy existing in Connecticut."

(k) *Resolutions.* Fairfield County Medical Association introduced six resolutions which were acted on as follows:

1. Inadequate Medicaid Rates and Policies: Approved with minor amendment as follows:

"Resolved, that the Connecticut State Medical Society shall advise the Legislature and the Connecticut Office of Health Care Access stressing the need for a new Medicaid plan which meets the federal requirements for reimbursement to assure and maintain proper access and quality of for Medicaid patients."

2. Hold Harmless Clauses in Managed Care Contracts. Approved with minor amendment as follows:

"Resolved, that the Connecticut State Medical Society pursue all means available seeking to eliminate "hold Harmless" type clauses from managed care contracts in the State of Connecticut. Such means should include but not be limited to communications with the managed care companies, seeking passage of state legislation to prohibit this unfair practice, and engaging in a public and physician education program about this problem."

3. Fairness for Patients: Approved as submitted:

"Resolved, that the Connecticut State Medical Society shall reaffirm its high priority in seeking passage of legislation which would require managed care plans, other than staff model HMO's, to accept a Physician or hospital on its provider panel as long as the physician or hospital met the published credentialing criteria of the health plan, and, agreed to abide by the plan's policies and procedures, and be it further

"Resolved, that the Connecticut State Medical Society shall publish and widely distribute a "white Paper" validating the need for legislation providing for the unencumbered freedom of choice by patients of their physician and hospital."

4. Designation COMPAC Contributions. It was voted not to adopt a resolution concerning designated contributions to specific candidates.

5. Publishing Distribution of Health Insurance Premiums. It was voted to publish a substitute resolution as follows:

"Resolved, that the Council of the Connecticut State Medical Society study whether we, as a Society, can gather data regarding health insurance companies' distribution of health insurance premium dollars amongst administrative costs, salaries, shareholder profits, and health care delivery and then determine how to use any available data that is gathered."

6. Condemnation of Reimbursement Systems Which Provide Incentives for Restricting Patient Care. It was voted to refer this resolution to the Council for further study.

(I) PROPOSED BYLAW AMENDMENTS

The Council placed the following bylaw amendments on the table for action at the next regular meeting of the House of Delegates:

Article XVI—Section l, Action.

"The Bylaws of the Society may be amended by an affirmative vote of at least two-thirds of the delegates present and voting at any regular or special meeting of the House of Delegates. Amendment shall take effect immediately upon adoption unless otherwise specified."

Present Bylaw reads: "The Bylaws of the Society may be amended by a majority vote of the total number of the voting members of the House of Delegates."

Article XV11-Parliamentary Procedure Section 1, Rules of Order "Sturgis Standard Code of Parliamentary Procedure, current edition, shall control all parliamentary proceedings of meetings of the House of Delegates and Council except when in conflict with the Bylaws of the Society."

Present Bylaw reads: In all matters of parliamentary procedure, The Society shall be governed by the most recent edition of Roberts Rules of Order (Revised)."

AWARDS

CSMS Past Service Awards to Officers and Councilors

Officers

Michael M. Deren, M.D., New London—Vice-Speaker of the House of Delegates 1990-1994.

Councilors

Fairfield County

Lawrence Michael Blum, M.D., Fairfield—Associate Councilor, 1988-1993 Councilor, 1993-1994

Robert D. Cottle, M.D., Stamford—Associate Councilor, 1990-1994

New Haven County

Ellen Ruth Fischbein, M.D., Cheshire—Associate Councilor, 1992-1994

Windham County

Stephen James Leach, M.D., Willimantic—Councilor, 1992-1994

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BOOK REVIEW

Physical Diagnosis: Bedside Evaluation of Diagnosis and Function—By Janice L. Willms, Ph.D., Henry Schneiderman, M.D., F.A.C.P., F.C.C.P., and Paula S. Algranati, M.D., F.A.A.P., 675 pp., bibliographic references, index, and 411 illustrations.
Williams & Wilkins, Baltimore, Maryland, 1994.
$48.00, ISBN 0-683-09110-7.

This book is an encyclopedia of knowledge covering all aspects of performing a thorough physical examination. The student and the practicing physician can use this text as a solid reference book, but hardly something to carry around to the bedside because of its size.

Textbooks written on physical diagnosis are generally dull and not inspiring. For me, physical diagnosis can be made inspiring and rewarding especially if it is occasionally sprinkled with the fascinating contributions of Hippocrates, Thomas Sydenaham, William Heberden, Jean Charcot. René Laennec, Leopold Auenbrugger, William Osler, and so many others who gave us the tools of our trade. It helps us to fix in our brains the many signs and symptoms dating back centuries. This custom of naming signs and symptoms is conspicuously absent in this thoroughly written text. Occasionally the language is cumbersome and not always as clear as it might be.

On page 330 under the heading of pericardial rubs the authors should have told us clearly that the rub persists if the breath is held, in order that we can differentiate it from a pleural friction rub.

In part one of this book the normal blood pressure is stated as being 140/90. According to the recent Joint National Committee on Evaluation of blood pressure, 140/90 is considered as stage 1 of hypertension, and 130/85 as normal.

I also must take exception to the reference to "falsely elevated blood pressure" caused by events such as smoking, exercise, etc. Elevation of blood pressure during exercise is a physiological event, and is not a false elevation; it is, in fact, very real, and, if extreme, may be dangerous.

As the authors did add some clinical information, ie, arterial blood gases, it would have been useful to have given us the normal and abnormal readings. A simple table under the heading of Blood-Gas Analysis would have been useful.

On page 313 the authors should also warn that the inhalation of amyl nitrite can cause the patient's skin to redden and even produce a scary sensation of intense warmth and panic, besides the possibility of drop in blood pressure and collapse.

The illustrations are well done and informative and there are many excellent pearls on physical findings.

Siegfried Kra, M.D.,
Associate Clinical Professor of Medicine,
Yale University School of Medicine

IN MEMORIAM

BENJAMIN, MARTIN R., New York Medical College, 1950. Dr. Benjamin maintained a private practice in Stamford from 1953 to 1981. After his retirement, he joined the teaching staff at the Stamford Hospital and the emeritus staff at St. Joseph Medical Center. Dr. Benjamin was a member of the Fairfield County Medical Association and the Connecticut State Medical Society. Dr. Benjamin died 5 November 1994 at the age of 70.

BONNER, JR., ROBERT A., University of Maryland School of Medicine, 1938. Until his retirement in 1983, Dr. Bonner was a surgeon in Waterbury for 40 years and served on the staff at both St. Mary's and Waterbury Hospitals. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Bonner died 17 August 1994 at the age of 81.

CORNETT, SAMUEL, J., Queen's University, Northern Ireland, 1955. Dr. Cornett was an anesthesiologist affiliated with Middlesex Hospital since 1967. In addition to the American Society of Anesthesiology, Dr. Cornett was a member of the Middlesex County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Cornett died 27 October 1994 at the age of 65.

GAUTAM, ANIL, All-India Institute of Medical Sciences, New Delhi, 1977. Dr. Gautam was a gastroenterologist who maintained a practice in Old Saybrook and New London and was on the staff at Lawrence and Memorial Hospital in New London. He was also a clinical professor at Yale University School of Medicine in New Haven and a consultant in gastroenterology at the U.S. Naval Hospital in New London. He was a member of the New London County Medical Association and the Connecticut State Medical Society. Dr. Gautam died 16 November 1994 at the age of 40.

GENVERT, HAROLD, Yale University School of Medicine, 1936. Dr. Genvert was a general surgeon in Norwalk until his retirement in 1980 and was a former Chief of Surgery at Norwalk Hospital. He was a member of the Fairfield County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Genvert died 13 November 1994 at the age of 87.

KELLEY, WINFIELD, O., Johns Hopkins University School of Medicine, 1937. Dr. Kelley was chief surgeon for the State Tuberculosis Commission for 28 years until his retirement in 1974. He was past president of the New London Medical Society Eastern Branch of the National Tuberculosis Society, a corporator of the William W. Backus Hospital, and an associate professor of surgery at Yale New Haven Hospital and Hartford Hospital. Dr. Kelley also served as a consultant in thoracic surgery at Lawrence and Memorial Hospital and the William W. Backus Hospital. He was a member of the New London County Medical Association where he served as vice president from 1967 to 1969, the Connecticut State Medical Society where he served on the Committee on Health Careers and the Committee on Public Relations during the 1960s and 1970s, and the American Medical Association. Dr. Kelley died 29 October 1994 at the age of 88.

KESSLER, FREDERICK, University of Vienna, 1937. Dr. Kessler maintained a private practice of allergy and immunology in New Haven from 1956 until his retirement in the early 1980s. He was affiliated with Yale New Haven and St. Raphael's Hospitals. Dr. Kessler was a member of the New Haven County Medical Association, the Connecticut State Medical Society, where he served on the Committee on Relative Value Study from 1962 to 1967, and the American Medical Association. Dr. Kessler died 28 November 1994 at the age of 83.

KOSAR, WALTER, P., Columbia University College of Physicians and Surgeons, 1946. Dr. Kosar, an obstetrician and gynecologist, maintained a private practice in Hartford and Glastonbury for 33 years. He was associated with Hartford Hospital for 40 years serving as president of the hospital's medical staff from 1978 to 1982. Dr. Kosar had been an assistant professor of obstetrics and gynecology at the University of Connecticut School of Medicine. He was a member of the Hartford County Medical Association where he served as a delegate to the Connecticut State Medical Society from 1962 to 1965, the Connecticut State Medical Society where he served on various committee's during the 1960s, and the American Medical Association. Dr. Kosar died 20 October 1994 at the age of 73.

LOIACONO, RICHARD, New York Medical College, 1943. Dr. Loiacono was an otolaryngologist in New London associated with Lawrence and Memorial Hospital prior to his retirement. He was a member of the New London County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Loiacono died 4 October 1994 at the age of 77.

MILLER, SEYMOUR, Tulane University School of Medicine, 1941. Prior to his retirement in 1962, Dr. Miller was a general practitioner in Hartford county associated with Mt. Sinai Hospital, Hartford Hospital, and St. Francis Hospital. He was a member of the Hartford County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Miller died 10 September 1994 at the age of 76.

MURPHY, JOHN J., Tufts University School of Medicine, 1943. Dr. Murphy maintained a family practice in Hartford from 1947 to 1986 and was associated with both St. Francis and Hartford Hospitals. He was a member of the Hartford County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Murphy died 24 November 1994 at the age of 76.

ROURKE, THOMAS, Columbia University College of Physicians and Surgeons, 1937. Dr. Rourke was a general practitioner in Greenwich for 40 years associated with Greenwich Hospital. He was a member of the Fairfield County Medical Association and the Connecticut State Medical Society. Dr. Rourke died 4 October 1994 at the age of 87.

TENNANT, ROBERT, Yale University School of Medicine, 1929. Dr. Tennant was a former director of the pathology department at Hartford Hospital and a former Professor of Pathology at the University of Connecticut School of Medicine. He also held an associate professorship at Yale University School of Medicine. Dr. Tennant was a member of the Hartford County Medical Association, the Connecticut State Medical Society, where he served on the Committee on Hospitals from 1962-67, and the American Medical Association. Dr. Tennant died 28 September 1994 at the age of 90.

THORNTON, GEORGE F., Boston University School of Medicine, 1959. Dr. Thornton was the Director of the Department of Medicine at Waterbury Hospital and a Clinical Professor of Medicine at both Yale University School of Medicine and the University of Connecticut School of Medicine. He was active in many medical education organizations as well as local and national organizations relating to infectious diseases. Dr. Thornton was a member of the New Haven County Medical Association, the Connecticut State Medical Society where he served on the Committee on Public Health from 1985 to 1994, and the American Medical Association. Dr. Thornton died 28 October 1994 at the age of 61.

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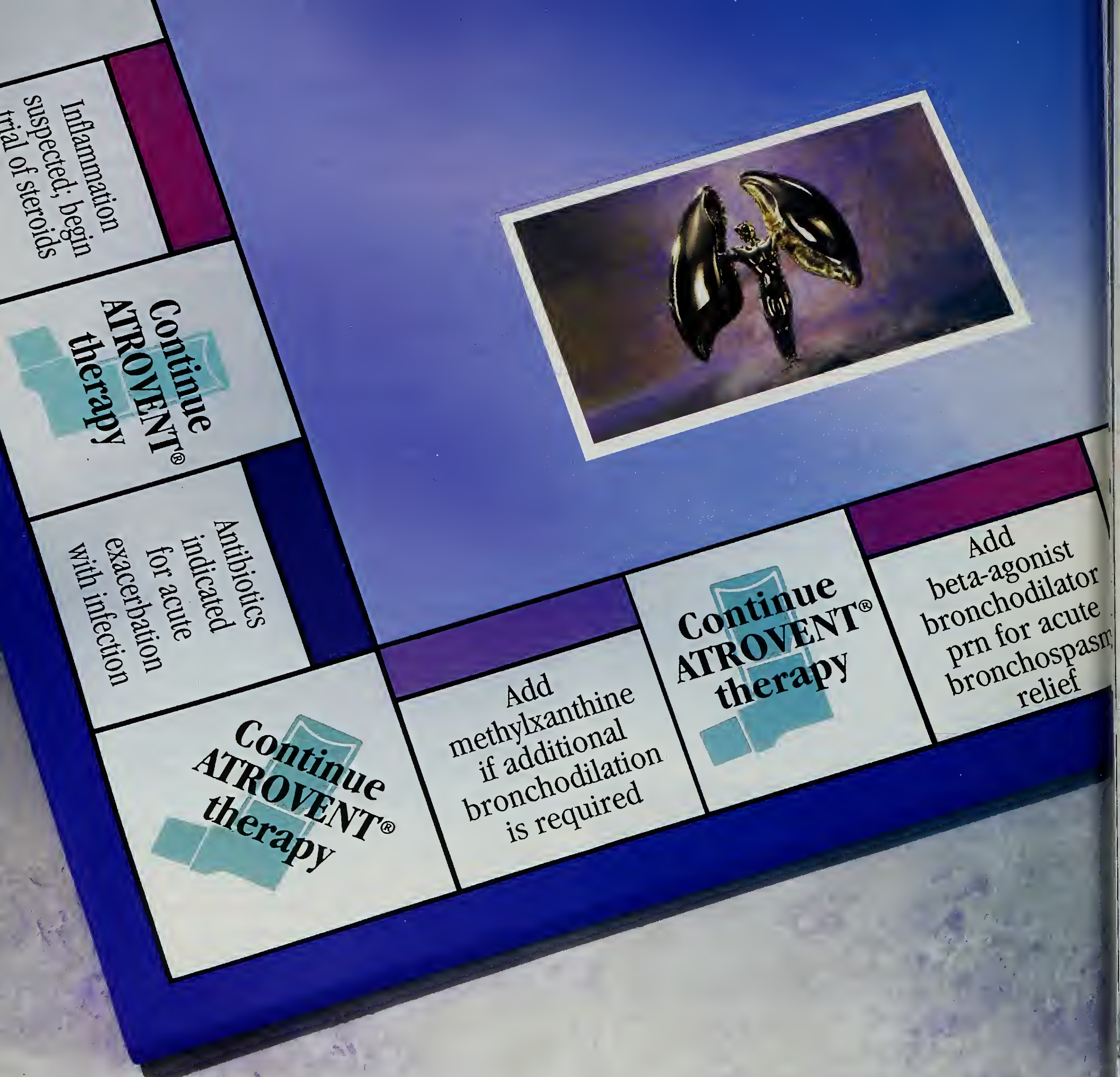
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Severe Necrotizing Soft-Tissue Infections: Report of 22 Cases

EYTAN RUBINSTIEN, M.D., DEBORAH DEHERTOGH, M.D.,
AND LEE BRETTMAN, M.D.

ABSTRACT—Twenty-two cases of severe necrotizing soft-tissue infections (SNSTIs), seen by the infectious disease service from 1983 to 1988 in a community teaching hospital, are described and compared with previously reported series. Clinical findings were distinguishable from cellulitis at the time of surgery in only 45% of the patients who had either necrosis, crepitus, vesicle or bullae, and/or an abnormal air pattern on x-ray studies. Patients with "cellulitis" were not less sick than patients with "necrosis" findings (ie, presence of shock, leukocytosis with left shift, fever, or anion gap). Despite the fact that all but one of the patients were seen by the infectious disease service preoperatively, and 55% underwent surgical intervention within 48 hours of admission, patient mortality (18%) was not better than some reported in earlier series. However, the epidemiology of SNSTI was different: in our series there were more diabetic patients (64%) and fewer postsurgical infections (14%). Among the diabetic patients, SNSTI developed more frequently at a site not related to peripheral vasculopathy or neuropathy. Abdominal wall involvement was 10 times more likely be diagnosed as cellulitis (5/8 *vs* 2/14 with involvement elsewhere, *P*<0.02).

Introduction

EARLY recognition of a severe necrotizing soft-tissue infection (SNSTI) and timing of surgical debridement are considered the most important factors affecting the outcome of SNSTIs.[1] Necrosis, crepitus, vesicles, bullae, and/or an abnormal air pattern on roentgenographic studies, in association with systemic toxicity and septic shock are the characteristic clinical findings of SNSTI at an advanced stage of the infection. Classification schemata based on clinical presentation and the causative microorganism(s) [2-9] are confusing and occasionally misleading; Dellinger has suggested that SNSTIs should be viewed as a spectrum of disorders.[10] In the early stages, the skin findings may be minimal or suggest cellulitis and the patients are not always severely ill. Bedside frozen biopsy of a suspected lesion has been advocated as an aid in the diagnosis of necrotizing fasciitis.[11]

We report 22 patients with SNSTIs seen by an infectious disease consultation service between 1983 and 1988 at a community teaching hospital, and compare our data with previously reported series.

Methods

Patient selection.—Patients' charts with one of the following discharge diagnoses: myonecrosis, necrotizing cellulitis, gangrene, fasciitis, or necrotizing myofasciitis, who were seen by the infectious disease service between April 1983 and February 1988, were reviewed independently by two authors (ER, DD). Patients were excluded if 1) there was no surgical consultation or operative note, and 2) the operative and/or pathological report did not confirm the diagnosis of SNSTI defined as extensive inflammation with necrosis and/or gangrene of cutaneous, subcutaneous, muscle, or fascial tissues.

EYTAN RUBINSTIEN, M.D., Assistant Professor, Section of Infectious Diseases and Epidemiology, Saint Francis Hospital and Medical Center, Hartford, and University of Connecticut School of Medicine, Farmington; DEBORAH DEHERTOGH, M.D., Director, Infectious Disease Clinical Research, Bristol-Myers Squibb Company, Wallingford; LEE BRETTMAN, M.D., Vertex Pharmaceuticals, Cambridge, Mass.

Table 1.—Demographic, Clinical, and Microbiological Data on 22 Patients with Severe Necrotizing Soft-Tissue Infections

No.	*Admitting service*	*Risk*	*Clinical findings*	*Site*	*Wound culture*	*Blood culture*	*Delay to surgery* (days)*	*Final diagnosis*	*Outcome (cause of death)*
1.	orthopedic	trauma	necrosis	leg	*E. agglomerans,* *Enterococcus spp.,* *C. sporogens*	ND[b]	3	myonecrosis	alive
2.	surgery	trauma	cellulitis	abdominal wall	*E. coli,* *P. mirabilis,* *Bacteroides spp.*	no growth	same day	necrotizing fasciitis	alive
3.	surgery	DM[c], surgery	cellulitis	abdominal wall	*E. coli,* *Enterococcus spp.,* *C. perfringens*	ND	2[d]	necrotizing fasciitis	alive
4.	surgery	trauma	cellulitis	abdominal wall	*Enteroccoccus spp.,* *Bacteroides spp.*	ND	same day	necrotizing fasciitis	alive
5.	surgery	trauma	necrosis	finger	*S. intermedius*	no growth	2	necrotizing fasciitis	alive
6.	obstetrics	surgery	necrosis	abdominal wall	no growth	*S. viridans*	g[e]	necrotizing fasciitis	alive
7.	medicine	DM	necrosis	leg, thigh	*E. coli*	*E. coli*	22	myonecrosis	alive
8.	medicine	trauma	cellulitis	buttock, perineum	*S.aureaus*	no growth	2	necrotizing fasciitis	alive
9.	medicine	DM	necrosis	thigh, vulva, perineum	*E. coli,* *Bacteroides spp.*	no growth	1	necrotizing fasciitis	alive
10.	surgery	DM, ETOH[f]	cellulitis	abdominal wall, buttock, perineum	*E. coli*	*E. coli*	same day	necrotizing fasciitis	alive
11.	medicine	DM	necrosis	foot	Streptococcus B	ND	2	necrotizing celluliti	alive
12.	medicine	DM	necrosis	foot	Streptococcus B, *Klebsiella spp.,* *Bacteroides spp.*	no growth	6	necrotizing fasciitis	alive
13.	medicine	DM	necrosis	scrotum	no growth	no growth	3	Fournier's gangrene	alive
14.	surgery	DM	necrosis	abdominal wall, labia	*Bacteroides spp.*	no growth	same day	necrotizing fasciitis	alive
15.	surgery	DM	necrosis	toe, leg	Streptococcus B, *Bacteroides spp.*	Streptococcus B	same day	necrotizing fasciitis	alive
16.	medicine	DM	necrosis	foot	Streptococcus A	Streptococcus A	same day	gangrene	alive
17.	surgery	unknown	necrosis	scrotum	*E. coli,* *Bacteroides spp.,* *P. aeruginosa*	no growth	3	Fournier's gangrene	alive
18.	medicine	DM	necrosis	abdominal wall	*S. intermedius,* *Bacteroides spp.*	no growth	same day	necrotizing cellulitis	alive
19.	surgery	DM	necrosis	thigh, perineum, perianal	*Enterococcus spp.*	no growth	same day	necrotizing cellulitis	died (acute MI)
20.	surgery	DM, surgery	cellulitis	abdominal wall	*Bacteroides spp.*	no growth	5[g]	necrotizing cellulitis	died (sepsis)
21.	medicine	trauma	cellulitis	thigh	Streptococcus A	Streptococcus A	1	necrotizing cellulitis	died (sepsis)
22.	surgery	DM	necrosis	breast	*S.viridans,* *Bacteroides spp.*	ND	same day	necrotizing cellulitis	died (sepsis)

Chart review.—Data were taken from charts and infectious disease consultation notes. Patients were defined as having "necrosis" if, at time of surgical intervention, they were found to have crepitus, necrosis, vesicles, bullae, and/or an abnormal air pattern on x-ray films taken of the involved site; or findings of cellulitis if, at time of surgery, they were found to have erythema, discoloration, tenderness, and swelling of the involved site. A "delay" was defined as the interval between admission and surgery or between the first surgical procedure and reoperation. The preoperative diagnoses were compared with the operative and pathological findings. A consensus between the authors (ER,DD) was reached regarding the final diagnosis.

Statistical methods.—ANOVA, Student's t test and χ^2 with continuity correction were used. A P value <0.05 was considered significant.

Results

The 22 patients fulfilling the study criteria are detailed in Table 1. Twenty-one patients were seen by the infectious disease service preoperatively, one was seen postoperatively. The male-to-female ratio was 1:1.75, 41% were white and 59% were black. Mean age was 57 (range 28-83 years). Forty-one percent were admitted to the medical service, 49% to general surgery, 5% to orthopedics, and 5% to obstetrics. Sixty-four percent of the patients had diabetes mellitus, 55% trauma, 45% arteriosclerotic cariovascular disease/peripheral vascular disease, 35% obesity, 14% postoperative, and 5% had an unknown risk.

On examination all patients were febrile (range=37.3°-41.1°C). Two thirds of the patients had swelling and tenderness and erythema at the involved site. Swelling was most common (91%), followed by erythema, tenderness, necrosis (45% each), malodor (41%), and discoloration (31%). Vesicles or bullae, and crepitus were noted in only five patients.

On the basis of the physical examination alone, 13/22 (60%) patients with findings of "necrosis" were identified. Two patients with findings of "cellulitis" had an abnormal gas pattern on a roentgen study. Thus, the final number of patients with findings of "necrosis" was 15/22 (68%) (Table 2). Comparing patients with and without crepitus, the x-ray film sensitivity was 100% (4/4) and specificity was 62% (8/13). An abnormal gas pattern in soft tissue was identified in 10/22 patients (45%), either by physical examination or by x-ray or both (Table 2).

There was truncal involvement (perineum, buttocks, genitalia, abdominal wall, and breast) in 64%, while extension of an inflammatory process along an extremity (leg, thigh, or finger) was seen in 36% of the patients. In 10 of the 14 diabetic patients (71%), there was involvement of a site other than the distal lower extremity (Table 1).

Culture specimens from the involved sites were obtained from all patients (73% preoperatively, 27% intraoperatively). There was a good correlation between gram-stain findings and subsequent culture results: granulocytes and/or bacteria were seen on all culture-positive specimens, and the bacteria seen on gram-stain correlated with the microbiological speciation in 95% (20/22). These findings are detailed in Table 3. Of the aerobic gram-positive organisms, *Enterococcus* and Group B *Streptococcus* were most common; of the aerobic gram-negative organisms, *E. coli,* was most common and of the anaerobic organisms, *Bacteroides* species. In two thirds of the specimens (14/22=64%), polymicrobial pathogens grew in culture, most commonly aerobic and anaerobic organisms (9/14=64%). Blood cultures were obtained in 77% of the patients and were positive in six cases (6/17=35%). There was no statistically significant correlation between the presence or absence of gas either by physical examination or x-ray study and specific pathogens identified in the wound or blood cultures, presence of anaerobes in wound culture, presence of bacteremia, specific risk factors, administration of antibiotics preoperatively, or mortality.

In most cases, the exact time between onset of disease and first evaluation in hospital could not be determined. Forty-three percent underwent surgery the same day of

Table 2.—X-ray Studies of Involved Sites in 22 Patients with Severe Necrotizing Soft-Tissue Infections

Assessment based on physical examination	*X-ray study (17 patients)* abnormal (No.)	*X-ray study (17 patients)* normal (No.)	*Assessment based on physical examination + X-ray*
"cellulitis" = 9 patients	2[a]	4	"cellulitis" = 7 patients "necrosis" = 2 patients
"necrosis" = 13 patients	7	4	"necrosis" = 13 patients
crepitus = 5 patients	4	0	
vesicles, bullae, necrosis = 8 patients	3	4	

[a] abnormal gas patterns in an extremity and in abdominal wall

Table 3.—Severe Necrotizing Soft-Tissue Infections—Microbiology Findings—22 Patients

Wound Culture (22 patients)	*No. of specimens*
aerobic (22 specimens)	
Gram (+)	13
Enterococcus spp (4)	
Group B Streptococcus (3)	
Group A Streptococcus (2)	
S. intermedius (2)	
Viridans Streptococcus (1)	
S. aureus (1)	
Gram (–)	8
E. coli (6)	
E. agglomerans (1)	
P. aeruginosa (1)	
P. mirabilis (1)	
Klebsiella spp (1)	
cutaneous flora	12
no growth	2
anaerobic (21 specimens)	
Gram (–)	10
Bacteroides spp (10)	
Gram (+)	2
C. sporogenes (1)	
C. perfringens (1)	
no growth	9
polymicrobial (22 specimens)	14
aerobic+anaerobic (9)	
aerobic+aerobic (5)	
anaerobic+anaerobic (0)	
Blood Cultures (17 patients)	
positive	6
E. coli (2)	
Group A Streptococcus (2)	
Viridans Streptococcus (1)	
Group B Streptococcus (1)	
negative	11

evaluation, and 53% within 48 hours. There was no difference in the delay of patients admitted to either the medical or surgical service, of patients with postoperative or nonpostoperative wound infection, or of patients with findings of "necrosis" or "cellulitis." Of the nine patients admitted to the medical service, two (22%) had findings of "cellulitis." Their delay to surgery was not significantly different from the "necrosis" patients admitted to the medical service or the patients admitted to the surgical service.

Anion gap ranged from 5-31 mmol/L. Twenty-seven percent developed shock; the overall mortality was 18%. The white blood cell count was 18,300±11,600 mean±SD. Seven patients (32%) had a white cell count in the range of 4,500 to 10,000; two of the seven were among the nonsurvivors. Of the multiple variables examined, only the percent of polymorphonuclears correlated with outcome in that it was significantly lower in the nonsurvivors. There was no statistical difference between these two groups in terms of age, maximal fever, physical findings at the involved site, presence or absence of bacteremia, or number of organisms in the wound.

In 18 patients there was concordance of the preoperative diagnosis with the final diagnosis (based on operative and pathology reports). The four patients who died were in this group. In three patients without concordance of diagnoses, both the attending physician and the infectious disease consultant underestimated the severity of the illness. Their preoperative diagnoses were: infected hematoma, abscess, gangrene, and cellulitis; the final diagnoses were necrotizing fasciitis and necrotizing cellulitis. None of these three patients died.

There was involvement of the abdominal wall in eight patients (36%). The only three postoperative wound infections were in this group: postcesarean section, postlaparotomy for small bowel obstruction, and postlaparotomy for obstructive sigmoid carcinoma. One of these three patients had findings of "cellulitis." Patients with involvement of the abdomen were 10 times more likely to have findings of "cellulitis" than patients with involvement elsewhere (5/8 *vs* 2/14). This was not related to age, sex, risk, bacteriological findings, delay from diagnosis to surgery or recent surgery, presence of shock, or administration of antibiotics preoperatively. Neither were the white blood cell count and degree of left shift, maximal fever, or anion gap significantly different.

Discussion

The presence of swelling, tenderness, or erythema is not helpful in distinguishing a necrotizing infection from an uncomplicated cellulitis, particularly in the early stages of SNSTI. In our series, for patients without clinical findings of a necrotizing infection (physical examination and/or x-ray film study), ie, with findings of "cellulitis," only heightened physician awareness and suspicion led to early surgical intervention and the diagnosis of SNSTI. This was as true of the infectious disease consultant as of the medical and surgical attending physicians. Physicians suspected SNSTI when "cellulitis" was associated with "inappropriate" toxicity, a particular trauma (motor vehicle accident, needle stick), an associated disease (diabetes mellitus), or recent surgery, all of which are well recognized risk factors for SNSTIs.[3,6]

Bedside biopsy has been utilized for preoperative diagnosis of SNSTIs[11] but is not practiced at our institution. We, as others,[17] found x-ray studies to be helpful: in two cases with bedside findings of "cellulitis," an x-ray film of the involved site suggested the correct diagnosis of a necrotizing process. Clinical and laboratory parameters associated with severe systemic infection (such as presence of shock, leucocytosis with left shift, fever, or anion gap) were not helpful in distinguishing between "cellulitis" and "necrosis." Gram stain of a specimen obtained from the involved site was not diagnostic but was helpful in directing antibiotic therapy and correlated with cultures in 20 of 21 patients. Of all the laboratory parameters examined, only the percent of polymorphneuclear leucocyte was statistically significant in that it was associated with survival.

Despite improved resuscitation and supportive measures, most series from the postantibiotic era report a mortality of 29% to 73%[6,12,13,15,16,18-20] and have not been able to achieve improvement over the original mortality of 20% reported by Meleney in 1924.[4] It is discouraging that even though 55% of patients did not have evidence of "necrosis" at time of surgery, and even though all but one were evaluated by an infectious disease consultant preoperatively, and even though 53% of the patients underwent surgery within 48 hours of admission, our mortality rate of 18% was not dramatically different from other series reporting a delay of 4-5.7 days.[6,8,12-16,18-20]

Thus, at least in our series, even when surgical intervention was implemented before bedside findings of "necrosis" became evident, presumably in the early stages of the disease, mortality from SNSTI was still not much better than 20%.[4] Since the first report of gangrene of the penis by Fournier in 1884,[7] great improvements in the control and prevention of postoperative infections have been developed. Only 14% of our cases were postoperative complications, compared to 20% to 32% of earlier series.[6,13,16,18] Trauma and diabetes mellitus have become the important risk factors of SNSTIs in the postantibiotic era. This emphasizes the need for internists as well as surgeons to be familiar with the spectrum of soft-tissue infections and their risk factors. In our series, 41% of the patients were admitted to the medical service, and most diabetics in the study had been followed as outpatients by members of the medical staff.

SNSTI involving the abdominal wall was significantly less likely to be accompanied by clinical findings of necrosis than involvement of an extremity or perineum or genitalia. The only three postoperative infections were in this group and two of them had findings of "cellulitis." Even when these three patients are excluded, statistical significance could still be demonstrated. We were unable to identify any significant association with clinical or laboratory parameters, possibly due to our small numbers. We are unaware of any previous attempt to associate the site of involvement with preoperative clinical findings. Possible explanations are: 1) physicians are sensitive to disease involving the abdominal wall, especially if it is the site of recent surgery, and are more likely to perform a diagnostic surgical procedure early in the infection before overt findings of necrosis develop; 2) SNSTI involving the abdominal wall may progress more slowly. This may be due to differences in the vascular supply and vasomotor mechanisms compared to peripheral sites; 3) in a population of patients with a high prevalence of peripheral vasculopathy and diabetic neuropathy, a necrotizing infection in an extremity may progress untreated for some time, while a similar infection in the abdominal wall is more likely to be associated with pain and therefore come to the attention of a physician at an earlier stage.

Most of the diabetic patients in our series had involvement of a site other than a distal lower extremity that seemed not to be a complication of diabetic peripheral vasculopathy or neuropathy. This deranged response to infection, which appears to be independent of vascular or neurological integrity, is a well-described phenomenon in diabetes mellitus, but has not been commented on in regard to SNSTIs specifically.

Since all but one of the patients in our series were seen by an infectious disease consultant prior to surgical intervention, it is likely that input from a physician experienced in recognizing SNSTI accounted for the rapid surgical intervention and the establishment of the correct diagnosis. We believe that such patients should also be included in the spectrum of SNSTIs, since in past reviews, patients were identified exclusively on the basis of bedside, preoperative local findings of necrosis. Severe necrotizing infections of the soft tissues have been historically categorized into separate clinical entities.[2-4] We, as others,[10] found that no specific organism or combination of organisms is diagnostic of any type of necrotizing soft-tissue infection. For example, *E. coli* was isolated as the sole pathogen in one patient with myonecrosis and in another patient with necrotizing fasciitis. Furthermore, we found considerable overlap between the different categories of soft-tissue infections and the patients' presenting signs and symptoms, radiological findings, and laboratory values. For example, Case 1 demonstrated very little systemic toxicity and yet was found to have myonecrosis and *C. sporogenes* in wound culture. We therefore utilized the term "Severe Necrotizing Soft-Tissue Infections (SNSTIs)" to encompass all categories of necrotizing soft-tissue infections and agree with Dellinger that these are "multiple disease entities requiring a common approach."[10] Historical terminologies, such as Fournier's gangrene or

Meleney's gangrene, continue to be useful in describing the specific location or characteristic of subcategories of SNSTIs.

Conclusions

- Clinical awareness and suspicion continue to be most important for the diagnosis of SNSTIs and enable correct treatment of SNSTIs lacking bedside findings of "necrosis."
- Radiographic studies are important in diagnosing SNSTIs that appear as "cellulitis."
- No laboratory value is helpful in distinguishing between "cellulitis" and "necrosis" appearing SNSTIs.
- In spite of early infectious disease consultation and rapid surgical intervention, mortality from SNSTIs continues to be high.
- SNSTI continues to be a postsurgical complication, although less frequently than previously described.
- SNSTI involving the abdominal wall may mimic "cellulitis."

These observations are important since a large proportion of patients with SNSTIs have diabetes mellitus and are admitted to the medical service.

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IMPORTANT NOTICE

RELOCATION OF FCMA HEADQUARTERS

The Fairfield County Medical Association
has moved its headquarters
on Thursday, January 26, 1995
from 60 Katona Drive in Fairfield to the following address:

The Fairfield County Medical Association
2285 Resevoir Avenue
Trumbull, CT 06611-4783
New Phone Number: (203) 372-4543
New Fax Number: (2030) 372-5293

Abstracts: The Norwalk Hospital's Research and Scientific Symposium Held on 7 October 1993

Foreword—Research is an integral part of medical education and both research and education contribute to the quality of patient care. Clinical practice alone may not assure excellence of quality of medical practice in a hospital. The quality of medical care has been shown to be a reflection of the scholarly activities of a hospital's attending physicians, house staff, and other allied health workers.

The Norwalk Hospital's Research and Scientific Symposium in celebration of its 100th birthday was held on 7 October 1993. This provided a forum for the presentation of the research of our investigators to share their findings, to provide an awareness of the types of research being done, and to foster the improvement of quality through more cooperative efforts in research. More than 44 abstracts were submitted for oral and poster presentations, most of them of high quality. They covered a broad spectrum of subjects which included basic research, clinical investigation, outcome studies, and health-care research for cost-effective delivery of medical care. Our research symposium reaffirmed the commitment of Norwalk Hospital to research as a vital part of medical education and patient care. We have selected nine abstracts for publication.

Sreedhar Nair, M.D.
Chairman, Program Committee

Coding and Nomenclature Issues for the Practicing Clinician

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Introduction

The issue of health-care quality is of the highest priority, and in assessment of quality both the process and the outcome of medical care data retrieved from patient charts is important. At the Center of Health Informatics we are developing Informatics tools to conduct practice-based outcomes research on chronic obstructive pulmonary disease (COPD). In order to test the tools developed we completed a retrospective study of medical records of patients admitted with the diagnosis of COPD with acute exacerbation and observed variations in ICD coding.

Aim

A statewide survey to study the variations in coding practices of other general hospitals in the state of Connecticut.

Method

All general hospitals (36) in Connecticut were asked to have their health information management departments answer a questionnaire, asking them to fill in the ICD-9-CM code for six commonly used COPD related diagnoses, such as COPD, COPD with acute exacerbation, chronic bronchitis, chronic bronchitis with acute exacerbation, asthmatic bronchitis, and emphysema.

Results

We had a 100% response, and the results are tabulated with two responses from one site. There was almost unanimous agreement on the ICD-9-CM codes for COPD and for emphysema. There were variations in the other four diagnoses.

Discussion

The authors concluded that they were not dealing with coding errors but rather differences in nomenclature. These differences have been pointed out by several medical educators. The importance of these variations need to be considered seriously by clinicians and researchers as well as statisticians, since ICD-9-CM codes form an important basis for retrieving and comparing data. These variations could possibly lead to wrong conclusions in mortality statistics, hospital performance, peer review, and other areas vital to health-care evaluation.

Conclusion

The need for continually updating the nomenclature and diagnosis is generally recognized. This multidisciplinary task is the responsibility of practice-based physicians as much as it needs attention from clinical researchers and investigators.

Table 3—A Tabulated Summary of Responses

ICD-9-CM	*COPD*	*COPD with acute exacerbation*	*Chronic bronchitis*	*Chronic bronchitis with acute exacerbation*	*Asthmatic bronchitis*	*Emphysema*
296	37	31				
491.9			28	6		
491.21		6		13		
493.90					27	
492.8						35
490			2	1		
491.20			1	3		
491.0			2			
493.9					1	
466.0			1	3	1	
493.2					1	
493.9x					1	
491.8			1			
491.2			1			

There were 17 responders who used a combination of two or more ICD codes.

Laryngeal Complications as a Consequence of Intubation

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Introduction

Significant complications can be encountered in some patients as a result of endotracheal intubation especially when utilized for prolonged periods. It has been established that certain factors exist that predispose patients to complications that can be permanently debilitating or even life threatening. The author has investigated a number of these predisposing factors. Clinical and laboratory studies have been performed suggesting that diabetes and gastroesophageal reflux (GER) are important in the development of significant and permanent laryngeal and tracheal injury in the intubated patient.[1,2]

Aim

To evaluate the occurrence and character of GER and its effects upon the larynx and trachea of intubated patients, clinical observations and several animal models were employed.

Methods and Materials

Monitoring of pH values for GER was performed in intubated patients both in the operating room and the intensive care unit. Animal models were employed to determine the direct effect of GER upon the larynx and trachea as well as well its effect on mucocilliary flow. Hospital records of intubated patients were reviewed to determine the presence and incidence of any etiologic factors related to laryngeal and tracheal injury.

Results

A 40% incidence of GER was found in intubated ICU patients not receiving antacid therapy. After exposure to gastric juice, marked inflammation and necrosis were observed in the larynx of rabbits, and a significant reduction of mucociliary flow was found to occur in the dog's trachea. The records of 372 consecutive patients intubated over an 18-month period were reviewed with 6% developing significant laryngeal injury. With one exception all of these complications were encountered in diabetic females.

Discussion

The physiology and mechanisms of these events indicate that GER and diabetes may play an important role in the pathogenesis of laryngeal sequelae from intubation. This suggests that early tracheostomy should be considered in these individuals when the use of prolonged intubation is anticipated. It is also recommended that pharyngeal pH be monitored in intubated patients because their altered state of consciousness may predispose to gastric reflux. Treatment for GER should be instituted in any intubated patient and especially if GER is encountered.

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Long-Term Results After Radiation Therapy for Prostate Cancer

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Introduction

Results of primary radiation therapy for early and locally advanced prostate cancer are equivalent to results after radical surgery.

Aim

The aim of this research was to determine survival, disease-free survival, and local failure rates for patients treated with primary radiation.

Materials

Fifty-seven patients with localized prostate cancer were treated in the Department of Radiation Medicine between 1983 and 1988. Follow-up was five to 10 years. Ages ranged from 54 to 79. Thirty-seven patients had clinical stage B disease (confined to prostate), nine had clinical stage A disease (nonpalpable disease), 11 had clinical stage C disease (extracapsular or seminal vesicle extension). Staging studies included: complete physical examination including rectal examination, acid phosphatase, abdominal and pelvic computed tomographic scans, and bone scan. A clinical staging system was used. All patients were treated with the Varian linear accelerator and treated to a minimum tumor dose of 6480 cGy.

Follow-up data were obtained from the radiation medicine department and from the referring urologists. This included a history and physical, rectal examination, acid phosphatase (in the latter years, PSA) and when indicated, bone scans. Patients with distant metastases underwent either an orchiectomy or hormonal manipulation.

Methods

This retrospective study assessed overall actuarial survival, actuarial "no evidence of disease" (NED) survival, local failure rate using the Life Table Method.[1]

Results

Five-year actuarial survival is 88% ± 14% with a five-year actuarial NED survival of 80% ± 12%. Seven-year actuarial survival is 74% ± 14% and seven-year actuarial NED survival is 50% ±12%. Only two of 57 patients had evidence of local failure without simultaneous distant metastases. Acute side effects during the course of radiation treatments chiefly resolved with no or minimal medications. None of the patients had complications requiring surgical intervention.

Discussion

This series of prostate cancer patients includes patients with comorbid conditions, lower Karnofsky performance scale, (symptoms, disability, performance scale) and poorly differentiated tumors. These were all factors shown in previous studies to be independent prognostic variables for decreased survival. However, in spite of inclusion of such patients, results with primary radiation treatments have been excellent. The results at Norwalk Hospital compare favorably with overall five- and 10-year survivals from Stanford University of 82% and 60% respectively for clinical stage B patients. At Washington University, five- and 10-year survival rates for clinical stage B2 prostate carcinoma were 82% and 62%

Conclusion

Radiation therapy should be considered an excellent alternative to radical prostatectomy in patients with localized and locally advanced prostate cancer. External beam radiation therapy results at Norwalk Hospital are comparable to results of radiation treatments at Stanford University and Washington University.

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The Influence of Maternal Diabetes on Neonatal Outcome

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Objective

To compare the incidence of neonatal morbidity [corrected for gestational age at delivery and method of birth (vaginal or cesarean)] in the infants of diabetic mothers (IDM) with newborns of non diabetic mothers.

Design

Case controlled study.

Setting

Tertiary care center, McMaster University Medical Center, Hamilton, Ontario.

Patients

All liveborn IDMs delivered between 1980 and 1989, inclusive, were matched for gestational age, method of birth, and year of birth with newborns of nondiabetic mothers.

Main Outcomes

Outcomes were neonatal respiratory distress, jaundice, hypoglycemia, polycythemia, hypocalcemia, intraventricular hemorrhage, seizures, and macrosomia.

Results

Two hundred thirty IDMs were compared to 460 controls. There was a significant increased incidence in the IDM of jaundice (odds ratio 1.21 -3.08), birth weight > 90th percentile (or 2.71 –6.37), use of IV glucose (or 3.51 –8.27). No significant increase was found in the incidence of respiratory distress, hypocalcemia, or polycythemia. Maternal hemoglobin A (HbA) levels were not significantly related to birth weight and neither HbA levels nor macrosomia were predictive of neonatal morbidity. Nearly 25% of IDMs were delivered prematurely; 59% of those electively because of hypertensive disease.

Conclusions

Neonatal morbidity in the IDM is now determined more by gestational age at delivery than by maternal diabetes. No relationship could be found between the degree of control within the range achieved in this series and neonatal morbidity.

Air Pollution Associations with Asthma Exacerbations, Peak Flow Changes, and Respiratory Symptoms in Children at a Summer Asthma Camp

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Introduction

Daily air pollution and health data were collected during June 1991 and June 1992 at a week-long asthma camp held in the Connecticut River Valley to assess whether ambient summertime haze air pollution adversely affects children with asthma. As reported previously (*Am Rev Respir Dis* 1992; 145:A429), asthma exacerbations (defined as acute episodes of wheezing deemed by the on-site physician as requiring administration of an inhaled b-agonist) by the children (aged 7-13) increased as pollution increased during the 1991 camp, indicating a strong association between summertime haze air pollution and asthma exacerbations.

Aim

Two other health outcomes (afternoon respiratory symptoms and morning-to-afternoon peak flow changes (PEFR) and a repeated study at the same camp in 1992 were examined to provide insights into the coherence of the reported 1991 exacerbation-pollution association with other results.

Methods

During each year, hourly average measurements of ozone (O_3) and twice daily (9 AM to 9 PM) acidic aerosol (ie, sulfates and hydrogen ion) and daily pollen samples were collected on-site. Meteorological measurements (eg, temperature) were made at nearby Connecticut Department of Environmental Protection sites, as well as on-site in 1992. Compared to the first year, the children were exposed to much less air pollution in 1992 (eg, the highest 1992 daily 1-hr O_3 max. = 63 ppb *vs* 160 ppb in 1991). Health and peak flow data were recorded for each of the children.

Results

Despite more children at camp in 1992 (55 *vs* 52 in 1991), there were fewer daily exacerbations (1992 max. = 27 *vs* 37 in 1991), and they were not significantly correlated with pollution, pollen, or temperature in 1992. Both afternoon chest symptoms (cough, phlegm, and wheeze) and PEFR (after eliminating children given medication) were also significantly correlated ($P<.05$) with O_3 and H^+ pollution, respectively, in 1991. In 1992, the only positive significant ($P<.05$) symptom association was between pollen counts and head symptoms (sore throat, runny nose, eye irritation).

Conclusions

Overall, the 1991 data indicate an associations of summertime haze air pollution with PEFR, chest symptoms, and asthma exacerbations. Furthermore, the 1992 camp results support the 1991 results in that, as expected, no correlation with exacerbations, PEFR, or symptoms were exhibited with pollution in this much cleaner "control" year.

Quantitation of Iron in Liver Biopsy: Correlation with Histological Findings and Potential Predictive Value for Hepatocellular Damage in Patients with Hemochromatosis

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Hemochromatosis, a disorder of iron metabolism characterized by pathologic iron overload may be either primary (ie, idiopathic or familial) or secondary (ie, acquired) as a consequence of alcoholism, thalessemia, or repeated blood transfusions. Idiopathic familial primary hemochromatosis is a genetic disorder in which iron absorption is inadequately regulated.

To evaluate the contribution of the quantitative determination of iron to the diagnosis and prognosis of hemochromatosis in liver biopsies, we determined tissue iron by the modified method of Evenson and Anderson[1] in 11 unselected cases and compared the results with the histopathological diagnosis; the stainable iron in the tissue sections by the method of Gomori and the concentration of ferritin in the serum. The results are in the table below.

The data show good correlation of quantitative liver-tissue iron with stainable iron, with the serum ferritin, and with the final diagnosis. Furthermore, there may be a critical hepatic iron concentration above which there is a risk of chronic hepatocellular damage. This level is stated in the literature as approximately 22,000 mg of iron per gram dry weight.[2] Primary hemochromatosis, detected before severe irreversible liver damage has developed, is treatable and compatible with normal survival.[3,4] The quantitative tissue iron is important in providing objective evidence to predict liver-cell damage.

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Table 1

Patient ID	*Liver iron (μg/g)*	*Ferritin (ng/mL)*	*Stainable iron*	*Diagnosis*
1001	5100	421		Hemochromatosis
2002	1844	>2000	4+	Hemochromatosis with cirrhosis
3003	4458	2283	3+	Hemochromatosis
4004	1095	1406	3+	Hemochromatosis
5005	3212	2414	4+	Hemochromatosis
6006	19832	1467	4+	Hemochromatosis
7007	1867	432	3+	Hemochromatosis
8008	3807	349	3+	Hemochromatosis
9009	275	992	3+	Mild fatty changes and mild iron stores
1000	329	346	0	Moderate steatosis
1100	210	320	0	Steatosis of liver

Informatics Approach to Outcomes Research in COPD

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Introduction

Research that is increasingly gaining importance is the study of the effect of intervention as observed in the outcomes. The traditional approach to outcomes research is often based on analysis of secondary (administrative claims) data or through data collected from patient surveys. These studies have to contend with overcoming bias from confounding factors, including the question of data validity. The major source of care is the primary-care setting and this has been ignored.

Outcomes research depends on a reliable information base, and an objective of medical informatics research is to strengthen this information base. Assessing the outcome of care is particularly important for chronic diseases, such as chronic obstructive pulmonary diseases (COPD), because of their increasing burden upon the health-care system. COPD is a chronic progressive disorder and there is a lack of consensus on the most effective approaches to care for this patient population. Applying informatics tools a multicenter study is possible that pools the practice data to analyze patterns and experiences of a wide spectrum of practice settings, relating specific interventions to outcomes.

Aim

The purpose of the present pilot study is to develop the informatics infrastructure essential to support a successful prospective study. A study of this breadth must have clearly defined classification of patient categories, data elements, therapeutic interventions, and significant outcomes. Defining the categories and the data set is the first step towards developing the Informatics infrastructure.

Methods

The interdisciplinary project team of physicians and nurses developed a classification for the clinical assessment of COPD patients and identified a data set. Specifically the objective was to support decision-making by care providers in both primary care and hospital settings. The data set was tested by retrospective data entry from hospital charts of patients with a discharge diagnosis of COPD into forms developed with the data set. Finally software was developed with the data set for implementation in physicians offices, as the instrument for data collection in the prospective phase of the study.

Discussion

The data set was found adequate to extract data from the hospital charts. It provided a filter process and reduced the noise in the information. The data set has been incorporated into software to collect comprehensive data during the clinical encounters. The data entry interface is a checklist of clinical parameters. The informatics support will enable clinicians to analyze their own data and relate it to a larger data set from multiple sites. This would enable researchers to identify ideal protocols for delivery of consistent, high quality care that is also cost effective.

Gentle Ventilation Alone Can Prevent Bronchopulmonary Dysplasia (BPD) and Reduce Neonatal Morbidity and Mortality

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Introduction

Recent reports have demonstrated improved neonatal outcome without adversely affecting morbidity or mortality, utilizing a method of neonatal ventilation which emphasizes the early intervention with nasal continuous positive airway pressure (CPAP) for the treatment of respiratory distress with tachypnea and retractions, transient tachypnea of the neonate, meconium aspiration syndrome, apnea and bradycardia, and early and aggressive weaning from mechanical ventilation. This technique has been developed by Dr. Jen-tien Wung at Columbia Presbyterian Medicial Center in New York City.

Methods

the method emphasizes the use of minimal peak inspiratory pressures and low IMVs maintaining the *arterial carbon dioxide tension* in the range of 50-60 mm.Hg. FIO_2 is adjusted to keep the PaO_2 between 50-60 mm Hg and the nasal CPAP pressure is kept at 5 cm H_2O until the tachypnea and retractions become minimal or have disappeared. Infants on nasal CPAP may requre mechanical ventilation when PO_2 remains less thatn 50 mm Hg while on 80-100% oxygen, with marked retractions or frequent episodes of apnea on nasal CPAP.

Table.—Results of 158 Consecutive Inborn Neonates 500-1500 g

Birthweight (g)	500g to 1000g, n-53	1001g to 1500g, n-105	500g to 1500g, n-158
Average wt. (g)	816	1236	1131
Survived, no. (%)	43 (81%)	101 (96%)	144 (91%)
Days on ventilatory (IMV) (range)	6.1±8.9	3.5±7.7	4.7±8.4
Days on nasal CPAP (Range)	12.4±14.3	9.4±7.9	9.8±11.1
Pneumothorax	6 (12%)	2 (2.7%)	8 (6.5%)
IVH (III & IV) no. (%)	6 (11.3%)	5 (4.7%)	11 (6.9%)
BPD no. (%)	6 (11.3%)	4 (3.8%)	10 (6.3%)

We reviewed 158 consecutively ventilated inborn infants (1986-1994) with birth weights of 500 to 1500 g treated in this way and analyzed the incidence of chronic lung disease (defined as patients on oxygen at 28 days), intraventriculr hemorrhage (IVH), and survival. *None* of the patients were treated with muscle relaxants or sterioids. The use of endotracheal tubes was minimized.

Results

Days on ventilator and nasal CPAP were minimal (see table). The incidence of chronic lung disease in this group was less than 7%, of intraventricular hemorrhage (grade 3 and 4) less than 7%, and the overall survival at 28 days was 91%.

Conclusion

We believe this gentle ventilatory method does minimize barotrauma while reducing morbidity and mortality.

Neuroendocrine Parameters in Spinal Cord Injured Patients Involved in a Computerized Functional Electrical Stimulation Exercise Program

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Circulating levels of beta-endorphin immunoreactivity (BEP-ir) rise in association with acute spinal cord injury (SCI) and are hypothesized to mediate the degree of injury. Chronic SCI is associated with abnormal corticotropin and cortisol release. However, the effect of chronic SCI on circulating levels of BEP-ir are unknown. Aerobic exercise can acutely increase circulating BEP-ir in individuals without SCI. Computerized functional electrical stimulation (CFES) simulates the motion of bicycle riding in paralyzed limbs by sequentially stimulating quadriceps, hamstring, and gluteal muscles using surface electrodes. CFES can achieve an aerobic level of exercise in SCI patients. Our aim was to determine the baseline and postdexamethasone levels of BEP-ir and cortisol by radioimmunoassay in nine SCI patients (bloods drawn at rest on nonexercise days), to determine the effect of 19 and 30 weeks of CFES exercise on the same parameters, and to measure change in mood by the Beck Depression Inventory (BDI) and the Hamilton Rating Scale for Depression (HRSD). The results below are expressed as mean (SD). The mean AM postdexanethasone BEP-ir increased from 2.9 (1.6) at baseline to 7.1* (2.9) at 19 weeks and 11.2* (2.9) at 30 weeks.

We conclude that patients with chronic SCI have low levels of BEP-ir and that CFES exercise produces sustained significant elevations of pre and postdexamethasone BEP-ir. We also note that exercise improves mood in chronic SCI. However, the measures of mood and the change in hormonal levels did not correlate statistically.

	BEP-ir	Cortisol	BDI	HRSD		
NORMAL	(7-20pg/mL) AM	(5-25μg/dL) PM	(<10) AM	(<14) PM		
BASELINE	6.2 (3.5)	4.9 (2.3)	15.1 (15.5)	8.9 (5.7)	12.7 (8.5)	12.6 (8.5)
WEEK 19	13.8* (3.7)	10.6* (2.4)	18.1 (3.8)	8.8 (4.8)	8.9 (7.0)	9.4 (6.1)
WEEK 30	18.9* (13.9)	15.1* (7.9)	13.5 (5.2)	8.9 (3.7)	6.6* (6.1)	6.3* (4.8)

*$P < 0.05$ *vs* baseline by Student's t test

Important Advances in Clinical Medicine

Ophthalmology

Alfred C. Marrone, MD, Section Editor

The Council on Scientific Affairs of the California Medical Association presents the following epitomes of progress in ophthalmology. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and clinical importance. The items are presented in simple epitome, and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, researchers, and scholars to stay abreast of progress in medicine, whether in their own field of special interest or another.

The epitomes included here were selected by the Advisory Panel to the Section on Ophthalmology of the California Medical Association, and the summaries were prepared under the direction of Alfred C. Marrone, M.D., and the panel.

Keratorefractive Surgery

"KERATOREFACTIVE" or "REFACTIVE" surgery refers to the overall family of procedures that permanently alter the way the eye refracts incoming light. Each procedure achieves its effect by altering the curvature of the cornea. To diminish myopia (nearsightedness), the cornea is flattened. To diminish hyperopia (farsightedness), the cornea is steepened. To diminish astigmatism, the cornea is flattened in the axis of the steeper corneal curvature. The hyperopic procedures, using automated lamellar keratoplasty or the excimer laser, are not as widely done as the myopic and astigmatic procedures. Although there are many forms of keratorefractive surgery, the most common are radial keratotomy, astigmatic keratotomy, automated lamellar keratoplasty, and photorefractive keratectomy using the excimer laser. These procedures are often combined to achieve optimal results.

Patients seek refractive surgery because they wish to see well without physical dependence on glasses or contact lenses, especially in emergency situations, to improve their performance in a profession or sport, or to meet the visual requirements for occupations such as law enforcement or fire fighting. A person with high myopia who cannot tolerate contact lenses may be severely visually handicapped by the need to wear spectacles that diminish the image size and may grossly distort image quality. These patients seek permanent surgical reduction of myopia simply to be able to function in everyday activities.

Radial keratotomy has been done in the United States since 1978 and involves making deep radial incisions into the corneal stroma, leaving a clear central "optical" zone around the pupil into which no incisions are made. Usually four or eight radial incisions are created using a handheld diamond scalpel. Radial keratotomy is effective in diminishing nearsightedness of 6.00 diopters (D) and below, but higher amounts of nearsightedness can be corrected in patients in their 40s or 50s. In radial keratotomy, about 10% to 25% of patients require a second operation to achieve the final result. The Prospective Evaluation of Radial Keratotomy (PERK) Study, sponsored by the National Eye Institute, found that 92% of patients with low myopia (between 1.50 and 3.00 D) and 86% of patients with myopia between 3.12 and 6.00 D had a visual acuity of 20/40 or better without spectacles or contact lenses five

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years after the operation. The PERK study serves as a valuable benchmark for evaluating other studies and the results of other keratorefractive surgical procedures.

Astigmatic keratotomy can be done alone or, most commonly, in combination with radial keratotomy, during or after cataract surgery, or following automated lamellar or penetrating keratoplasty to diminish astigmatism. This consists of making transverse or arcuate incisions in the peripheral cornea in the axis of the steeper corneal curvature. These incisions are effective in diminishing astigmatism from 1.00 to 4.00 D.

Automated lamellar keratoplasty is starting to be used to correct high amounts of nearsightedness from about –6.00 to –30.00 D. Although it can also be used to correct low hyperopia from +1.00 to +5.00 D, most clinical experience with this procedure is in correcting myopia rather than hyperopia. In automated lamellar keratoplasty, a motorized microkeratome using a steel blade creates a lamellar dissection of a one-third-thickness hinged corneal flap overlying the pupil. The corneal flap is folded back, and a second pass of the microkeratome permanently removes a central lamellar disc of corneal stroma, the thickness of which is determined by the degree of myopia. The hinged flap is then laid back in place and attaches to the underlying stroma by capillary attraction without the use of sutures. The cornea heals rapidly with minimal discomfort. As with radial keratotomy, the exact postoperative refraction is not entirely predictable for each patient. In a multicenter study involving 100 eyes, 75% of eyes of patients with high myopia achieved vision of 20/40 or better without the use of spectacles or contact lenses. In this study, 25% of patients required radial keratotomy and 5% required astigmatic keratotomy a few months after the keratoplasty to "fine-tune" the procedure and achieve the final results.

Photorefractive keratectomy is a surgical procedure that recontours the anterior surface of the cornea using 193-nm UV light from the argon fluoride excimer laser. A central circular zone of cornea measuring 4 mm to 6 mm overlying the pupil is ablated. The depth of ablation is determined by the amount of myopia. Although the excimer laser is used widely throughout the world, in the United States clinical trials under the auspices of the Food and Drug Administration (FDA) are currently underway. The excimer laser may soon be approved by the FDA for the treatment of corneal opacities in eyes with corneal scarring or corneal dystrophy, but the FDA must still decide whether or not to approve the procedure for the correction of refractive errors in healthy eyes.

Thus far, studies have shown that the excimer laser is as effective as radial keratotomy in diminishing nearsightedness as high as 6.00 D. Between 88% and 91% of patients demonstrate a visual acuity of 20/40 or better without glasses or contact lenses. As with radial keratotomy, patients with lower amounts of preoperative myopia achieve better results. Repeated operations for undercorrection or scaning will be needed in as much as 14% of treated eyes. Repeated procedures are far more common in eyes with higher preoperative myopia (>6.00 D). Complications such as the reduction of vision due to glare, undercorrection, or overcorrection appear to be no more common than after radial keratotomy. The regression of effect tends to be more common than with radial keratotomy, however, especially when refractions exceed –6.00 D. These problems may be diminished by using larger ablation zones (6 mm). The excimer laser can be combined with automated lamellar keratoplasty to treat high myopia. This protocol is currently being studied by the FDA and is showing favorable results.

Each of the refractive surgical procedures discussed is highly effective for permanently reducing nearsightedness and astigmatism. The final refraction for a patient is not entirely predictable, however. This is why second operations are required for 10% to 25% of patients undergoing each procedure. Although no refractive surgical procedure is without vision-threatening complications, the incidence following radial keratotomy, automated lamellar keratoplasty, and photoreactive keratectomy is low. Persistent symptoms such as glare, halo or starburst effect, occasional foreign body sensation, undercorrection, and overcorrection can be troublesome, but generally are not vision-threatening. A concern with radial keratotomy is the tendency of 15% to 20% of patients to have a continued flattening of the cornea years after the procedure. This can result in hyperopia, so most surgeons leave the eye slightly myopic after the procedure. Radial keratotomy and photorefractive keratectomy seem to be equally effective for correcting myopia below –6.00 D. Automated lamellar keratoplasty alone or combined with photorefractive keratectomy is effective in diminishing myopia above –6.00 D.

When selecting and counseling a patient for keratorefractive surgery, careful consideration must be given to the patient's expectation for visual result and the person's specific requirements for uncorrected visual acuity. Although patients with unrealistic expectations should be discouraged from having surgical therapy, those who wish to diminish their dependence on spectacles or contact lenses or who require better uncorrected vision for occupational or avocational needs can benefit from refractive surgery.

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Updated Recommendations from the Optic Neuritis Treatment Trial

ANALYSIS of data from the Optic Neuritis Treatment Trial (ONTT) has resulted in new recommendations for the management of optic neuritis. Whereas initial reports suggested a modest improvement in visual function at six months after a course of intravenous methylprednisolone sodium succinate followed by oral prednisone, one-year follow-up disclosed no notable difference between treated patients and controls. Therapy did, however, result in more rapid improvement of optic nerve function during the first several weeks after the onset of symptoms. Current practice, therefore, is to treat for visual effect only if there is a need to speed early recovery, as in patients with one functioning eye and those who need to recover binocularity quickly for occupational reasons. Oral prednisone therapy alone leads to an increase in the recurrence rate for optic neuritis, and this therapy remains contraindicated for typical cases.

Initial reports suggested no notable value for diagnostic studies such as serologic testing and magnetic resonance imaging (MRI) of the brain in routine cases. This stance has been altered based on newer information. Patients who had abnormal MRI scans, defined by the presence of two or more white-matter lesions of at least 3 mm in diameter, had significantly higher risk (36% *vs* 3% for those with no lesions) for multiple sclerosis developing within two years. When treated with intravenous methylprednisolone followed by oral prednisone, these patients showed a significantly lower rate of new neurologic events consistent with multiple sclerosis (7.5% *vs* 16.7% in placebo-treated patients) developing at two years. The Optic Neuritis Study Group thus recommends MRI of the brain in all patients with acute optic neuritis, with intravenous and subsequent oral corticosteroid therapy instituted for those with abnormal scans.

The cost and the use of hospital resources are important disadvantages of intravenous therapy if provided in the typical inpatient setting with divided daily doses. With the safety of this form of short-term treatment demonstrated by the ONTT, consideration may be given to administering the intravenous medication once a day (1 gram bolus) on an outpatient basis. Such a regimen has long been in use for patients having chemotherapy and following organ transplantation and is being adopted more frequently by neuro-ophthalmologists.

The ONTT has provided a wealth of information about optic neuritis and its relation to multiple sclerosis. Findings related to oral steroid effects on the recurrence rate and intravenous steroid effects on the development of multiple sclerosis are as yet not well explained, even if borne out empirically. They remain controversial, and the long-term investigation of these and other aspects of optic neuritis therapy, such as the optimal steroid dosage, the timing of treatment, and the management of recurrences, continues.

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Do Sunglasses Protect the Retina from Light Damage?

OPINIONS on the need for wearing sunglasses range from "All eyes should be protected from sunlight from a young age" to "Healthy eyes do not need sunglasses." What is the best evidence to guide us in answering patients' questions about wearing sunglasses?

In sunlight, the wavelengths of light that seem most damaging to the eye are blue (400 to 500 nm), UV A (320 to 400 nm), and UV B (290 to 320 nm). In youngsters, both the lens and the retina receive relatively large amounts of these short-wavelength radiations because the lens transmits most of them to the retina. In adults, the vast majority of blue and UV radiation is absorbed by the lens, and this has been associated with cataract formation. Furthermore, the incidence of pterygia and age-related macular degeneration has been shown to be higher in men who work in waterways (such as Chesapeake Bay) than on age-related matched controls. This may be related to blue or all visible wavelength light. Also, it has been suggested that "indoor" illumination, involving short-wavelength energy, can play a role in total damage to the retina. Aphakic eyes are more at risk for UV damage, and currently almost all the nonsilicone intraocular lenses used in cataract surgery absorb UV light. Eyes in which the pupils cannot constrict in response to bright light are also more at risk for light damage.

Most sunglasses do a good job of blocking UVB radiation. The transmission of UVA, however, can be as high as 75% in some sunglasses, so UVA-blocking characteristics must be specified if total UV protection is desired. To ensure complete UV protection, this should be specifically requested at the time of purchase. It is not necessary to buy darkly tinted lenses to obtain protection from UV and blue light. It is possible to block essentially all UV radiation with clear lenses. Yellow, orange, or brown tints may be selected to block blue wavelengths.

Those most at risk for retinal damage from short-wavelength light are patients with aphakia or pseudophakia with a non-UV-absorbing intraocular lens because there is nothing except the cornea in front of the retina to absorb the energy. Also at increased risk may be children, with their clear lenses; persons whose eyes have nonconstricting pupils; and persons with long-term exposure to high light levels. In general, it seems prudent to protect the retina from exposure to blue and UV wavelength light. This may also result in a decreased incidence of cataracts and pterygia.

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Nonsteroidal Eye Drops for Ocular Allergy

SEASONAL allergic conjunctivitis is a common ocular condition affecting all age groups. Salient symptoms include itching, epiphora (tearing), and erythema. Although allergic conjunctivitis responds to topical corticosteroids, the use of these medications can have serious complications including cataract and glaucoma. Corticosteroids should be used rarely, if at all, in the management of allergic eye disease. They should be prescribed only by an ophthalmologist and only for extremely resistant cases. Hence, the search for additional topical medications for seasonal allergic conjunctivitis has continued.

During the past 18 months, three new topical, nonsteroidal, ophthalmic preparations for treating allergic conjunctivitis and related diseases, such as atopic keratoconjunctivitis and vernal keratoconjunctivitis, have become commercially available.

The first of these three is ketorolac tromethamine 0.5% (Acular). Ketorolac is a nonsteroidal, topical antiinflammatory preparation approved by the United States Food and Drug Administration for allergic conjunctivitis. In a recent double-blind clinical trial, this medication has been shown to be effective for the treatment of allergic keratoconjunctivitis, especially compared with placebo (a strong placebo effect was seen in the clinical trials). The use of this medication has been reported previously in clinical studies of patients with allergic conjunctivitis. Ketorolac is an alternative to an antihistamine-vasoconstrictor combination that has been commercially available, and its use has been shown to relieve conjunctival inflammation, itching swollen eyes, burning, tearing, foreign body sensation, and photophobia. This drug is expensive, however, and has a side effect of substantial stinging for some patients. Its improvement over the commercially available antihistamine-vasoconstrictor combination has yet to be established.

Lodoxamide 0.1% is a mast cell stabilizer and prevents the release of mast cell mediators such as histamine. This newly available topical pharmaceutical is 2,500 times more active than cromolyn sodium in inhibiting the passive cutaneous anaphylactic reaction in animal models. Cromolyn sodium has been documented to be safe and effective in the management of vernal keratoconjunctivitis, but this drug is no longer commercially available in the United States. Lodoxamide has been approved for use for vernal keratoconjunctivitis, an uncommon form of type IV hypersensitivity that is probably related to allergic conjunctivitis. Lodoxamide was documented to be safe when used four times a day for as long as 28 days with few side effects, although some patients complained of burning sensations. Lodoxamide has not yet been shown to be effective in allergic conjunctivitis, but logically may be of some assistance. It requires about two weeks to establish an effective level since stabilization of mast cells will only prevent future symptoms and will not relieve or block the histamine that has already been released.

Levocabastine hydrochloride 0.05% is a potent histamine (H_1) antagonist. This topical nonsteroidal histamine antagonist has recently been made available for ocular use in allergic conjunctivitis. Patients with seasonal allergic conjunctivitis have a tenfold increase in histamine levels in their tears compared with patients without allergic signs and symptoms. Levocabastine is a synthesized histamine antagonist that has been formulated as either an ocular preparation or a nasal spray. It is one of the most potent antihistamine-histamine compounds available and is at least 15,000 times more potent than chlorpheniramine. Its use has been found to be safe and effective, particularly on days when the pollen count was high. The drug is well tolerated, and its use decreases subjective symptoms of irritation, pain, and tearing.

Initial studies with levocabastine compared it with another orally administered antihistamine for the prophylaxis and treatment of seasonal rhinoconjunctivitis. In the available findings, levocabastine was either superior to or similar to other antihistamines in the prophylactic treatment of seasonal rhinoconjunctivitis. Although levocabastine has been compared with other antihistamines and has been found to be an effective ocular medication for seasonal allergic conjunctivitis, it has not been compared with the currently available topical anti-histamine-vasoconstrictor combination. Levocabastine has minimal side effects except for occasional stinging. It is relatively expensive: suggested retail is between $23 and $29 for 5 ml.

None of the three pharmaceutical agents has been compared with the currently available antihistamine-vasoconstrictor combination and may be only minimally more effective. The standby therapy for allergic conjunctivitis consists of cold soaks, lubrications including artificial tears, and oral or, occasionally, topical antihistamines. If the condition is recurrent and severe, antigen testing and desensitization may be considered. Vernal keratoconjunctivitis or perhaps atopic keratoconjunctivitis may be best managed with lodoxamide. An H_1 blocker or nonsteroidal antiinflammatory drug may also be of assistance in some selected cases.

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Risk of Corneal Infection and Extended Wear of Contact Lenses

CORNEAL microbial infection is probably the most feared complication of wearing contact lenses. Both scientific study and a century of clinical experience with these devices suggest that corneal infection is a relatively rare event when contact lenses are restricted to daily (open-eye) wear and when compliance with care techniques and hygiene is good. Extending contact lens wear through one or more sleep cycles—extended wear—over the past two decades has dramatically increased the incidence of associated corneal infection. Wearing contact lenses, especially extended wear, is now considered a major risk factor for corneal infection, and all varieties of contact lenses—soft (both disposable and reusable), rigid gas permeable, and other less common types—have been involved.

The microorganisms associated with contact lens related corneal infections include principally *Pseudomonas* species, particularly *Pseudomonas aeruginosa,* and *Staphylococcus* species, although other bacteria, fungi, and *Acanthamoeba* species have occasionally been identified in the lesions. (Infections with *Acanthamoeba* species have been associated more with poor contact lens care and daily wear than extended wear.) It is thought that the microtrauma of lens wear and care, improper lens maintenance, chronic hypoxia, and perhaps some form of suppression of ocular surface immunity participate in producing infection, but our understanding of the infectious process remains incomplete.

To minimize the risk of contact lens-associated keratitis (and other complications such as corneal abrasion, neovascularization, and giant papillary conjunctivitis), wearers should take the following steps:

- Use contact lenses solely for daily (open-eye) wear;
- Never sleep or nap with contact lenses on the eyes;
- Care for contact lenses in a manner consistent with guidelines authorized by both the manufacturer and the United States Food and Drug Administration and common concepts of good hygiene (such as always washing hands before manipulating a lens, and not rinsing contact lenses in tap water before insertion);
- Obtain professional supervision at scheduled intervals to ensure that mechanical, optical, and physiologic responses are regularly monitored and optimized—even if there are no symptoms; and
- If experiencing ocular discomfort, pain, foreign body sensation, discharge, photophobia, or red eyes, immediately remove the contact lens. Should these signs or symptoms persist more than a few minutes, the patient should be professionally examined that day.

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Report on the Annual Yale Sports Medicine Seminar

Friday, 19 August 1994

Cosponsored by the Connecticut State Medical Society / Committee on the Medical Aspects of Sports

The 1994 Annual Yale Sports Medicine Seminar represented the first cosponsorship of this meeting by the Connecticut State Medical Society / Committee on Sports Medicine. This meeting has gained increasing popularity and this year was moved to a larger facility allowing an estimated 300 to 350 allied health personnel, physicians, residents, coaches, and other interested parties to participate in this event. The event occurs concurrent with the VOLVO International Tennis Tournament. The major topics discussed this year were Repair of Menisci, Recent Advances in the Treatment and Surgical Intervention in Muscle Injuries, and a review of Patellofemoral Dysfunction including diagnosis, treatment, and rehabilitation. The four invited speakers for the seminar were:

Dr. Kenneth DeHaven, Professor and Chairman, Department of Orthopaedics, University of Rochester School of Medicine and Dentistry, Rochester, New York.

Dr. John Fulkerson, Professor and Director of Sports Medicine Division, Chief, Section of Sports Medicine, Department of Orthopaedics, University of Connecticut School of Medicine, Farmington, Connecticut.

William Garrett, M.D., Ph.D., Director, Sports Medicine, Associate Professor of Orthopaedic Surgery and Cell Biology, Duke University Medical Center, Durham, North Carolina.

Dr. Holger Mellerowicz, Chief, Sports Medicine, Oskar Helene-Heim Hospital, University of Berlin, Germany.

The Annual Yale Sports Medicine Seminar followed its usual format which allowed extensive interplay between the audience and the faculty stimulating lively debate and question and answer periods. Commenatry obtained from the audience indicates a universal favorable response to this meeting and appreciation of the accessibility of these scientists to the audience.

The 1995 Annual Yale Sports Medicine Seminar has attracted another group of renowned speakers. These are Thomas Tutko, M.D., a noted psychologist, who will speak on the problems of violence in sports, W. Ben Kibler, M.D., whose topic will be current concepts in the rehabilitation of the shoulder, and K. Donald Shelbourne, M.D., who will present a talk on avoiding complications in ACL reconstruction timing of surgery and postoperative rehabilitation.

Peter Jokl, M.D.
Course Director, Annual Yale Sports Medicine Seminar

Rational Vancomycin Use Recommendations

CATHERINE M. HITT, PHARM.D., BRIAN COOPER, M.D.,
AND HELEN M. CROWE, M.D.

VANCOMYCIN, a glycopeptide antibiotic with activity against gram-positive aerobic bacteria, is commonly used in patients with β-lactam allergies or infections with organisms resistant to β-lactam antibiotics. The use of vancomycin has been steadily increasing since the early 1980s, as increasing numbers of gram-positive organisms have become resistant to β-lactam antibiotics. Now, as we approach the 21st century, resistance to vancomycin is also developing. This resistance is problematic because there are currently no alternate antimicrobial regimens with proven efficacy against vancomycin-resistant microorganisms. The purpose of this report is to review briefly the pharmacology, pharmacokinetics, and dosage recommendations of vancomycin. It will also provide results of a survey of vancomycin usage patterns at Hartford Hospital and provide the latest Centers for Disease Control and Prevention (CDC) recommendations for appropriate use of vancomycin.

Pharmacology and Pharmacokinetics

Vancomycin was first isolated from *Streptomyces orientalis,* a soil bacteria found in the jungles of Borneo, in the mid-1950s. Initial difficulties in drug preparation and purification resulted in a product that was often "murky" and acquired the nickname, "Mississippi mud."[1] Vancomycin is a general bacteriocidal agent that exerts its action by inhibiting bacterial cell wall synthesis.[2] It has activity against *Staphylococcus sp., Streptococcus sp., Enterococcus sp., Corynebacteria,* and *Clostridium difficile.*

Following oral administration, vancomycin is poorly absorbed from the gastrointestinal tract, and, therefore, in patients with systemic infections, it must be given intravenously. Two hours after administration of a one gram intravenous dose, peak serum concentrations are between 15 and 30μg/mL.[1-3]

Vancomycin is moderately protein bound (55%), distributes widely into body fluids and tissues (with the exception of variable penetration into cerebrospinal fluid), and is renally excreted.[2-3] In patients with normal renal function, vancomycin has a serum half-life of about six to eight hours.

Several side effects may occur with vancomycin therapy. The "red man" or "red neck" syndrome may occur if the drug is infused too quickly (this can be prevented by administering vancomycin over 60 minutes).[2] Ototoxicity and nephrotoxicity have been associated with prolonged elevated serum drug levels. Initially these events were thought to be relatively common with vancomycin therapy; however, with improved purification processes, reports of these toxicities have decreased dramatically. Many reports of toxicities involved concomitant therapy with other ototoxic or nephrotoxic drugs (ie, aminoglycosides) and failed to demonstrate a consistent relationship between vancomycin serum levels and occurrence of adverse events.[2-5]

Dosing and Monitoring Vancomycin Therapy

There are a variety of different recommendations available for dosing vancomycin. Many dosing nomograms have been developed based on the linear relationship

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between creatinine clearance and vancomycin clearance, and can be useful in initiating therapy.[6] Adjusting both the drug dose and dosing interval based on estimated renal function is recommended; Hartford Hospital guidelines for dosing are presented in Table 1.

Although monitoring of vancomycin peak and trough levels has been advocated to prevent oto- and nephrotoxicity, this practice has recently been called into question from a cost-effectiveness point of view. As previously mentioned, reports of vancomycin toxicity primarily occurred early in the use of the drug and was often associated with other known nephrotoxic or ototoxic drugs (ie, aminoglycosides). Data supporting the clinical usefulness of routine measurement of vancomycin peak and trough concentrations are sparse.[4-6] It is reasonable to limit measurement of serum vancomycin levels to those patients who would be at greatest risk for developing toxicities such as those with preexisting renal or auditory dysfunction, those on concurrent therapy with other nephrotoxic or ototoxic drugs (ie, aminoglycosides, amphotericin B, or both), and those patients receiving long-term (>7-10 days) therapy. In those patients requiring vancomycin monitoring, it is suggested that only trough levels be measured. The patient should receive at least 24 hours of therapy and a trough level should be drawn 30-60 minutes before a subsequent dose is given. Trough concentrations $\leq$ 10 μg/mL require no dosage adjustment and concentrations > 10 μg/mL may indicate the need to decrease the dose and/or dosing interval.

CDC Recommendations for Vancomycin Usage

The CDC's National Nosocomial Infections Surveillance (NNIS) system, from data collected over a 51-month period from 1989 through 1993, reported a dramatic increase in the incidence of nosocomial infections with vancomycin-resistant enterococci (VRE). Resistant strains of enterococci isolated in hospitals rose from 0.3% to 7.9%, with the largest increase coming from intensive care units (ICUs) (0.4% to 13.6% from 1989 to 1993, respectively). The report also identified large (>500 beds) teaching hospitals as having a higher percentage of vancomycin-resistant enterococci than smaller, nonteaching hospitals.[7]

Recently, evidence supporting this national trend of increasing VRE incidence has been reported locally. One study demonstrated the occurrence of gut colonization with VRE in 7/25 patients exposed to vancomycin and other antibiotics through the course of a hospital stay.[8] In a second report, seven patients in a 120-bed hospital were found to have multidrug-resistant enterococci.[9] In this outbreak, five of the seven (71%) affected patients died, with two deaths (40%) directly attributed to the enterococcal infection. Of note, in both of these reports the enterococci were of the VAN A phenotype which confer a high level of vancomycin resistance, as opposed to the VAN B phenotype which are moderately resistant to vancomycin. A particularly alarming component of this trend, is the potential for enterococci to transfer this resistance to other gram-positive organisms, especially staphylococci and *Listeria monocytogenes,* although this has not yet been reported clinically.[10] Table 2 summarizes the current CDC guidelines for vancomycin use that are intended to prevent widespread occurrence of potentially life-threatening infections due to VRE.

Table 1.—Suggested Dosing Guidelines for Initiating Vancomycin Therapy in Adults

Est. cr. cl.[a] *(mL/min)*	*Dose (mg/kg)*	*Interval (hr)*
85	14	12
66-84	11	12
41-65	14	24
26-40	11	24
16-25	14	48
1 5	14	Check level on day 3 or 4

[a] Estimated creatinine clearance based on the equation: 140-age/serum creatinine (x 0.85 for females).

Vancomycin Use at Hartford Hospital

A survey of vancomycin use patterns was recently conducted at Hartford Hospital. The criteria used in this evaluation were adapted from the CDC guidelines and are as follows: 1) use by an infectious disease physician;

Table 2.—CDC Recommendations for Vancomycin Use[11]

- Treatment of infections due to β-lactam resistant gram-positive organisms.
- Treatment of gram-positive infections in patients with serious β-lactam allergies (ie, type I hypersensitivity).
- Treatment of antibiotic-associated colitis (AAC) after failure of metronidazole *or* if AAC is potentially life threatening.
- Prophylaxis for endocarditis following certain procedures in patients at high risk for endocarditis (according to American Heart Association standards).[12]
- SINGLE DOSE prophylaxis in surgical patients receiving implants of prosthetic materials or devices at institutions with high rates of MRSA infections. (A second dose may be given if the procedure lasts longer than six hours.)

Table 3.—Results of Vancomycin Use Survey

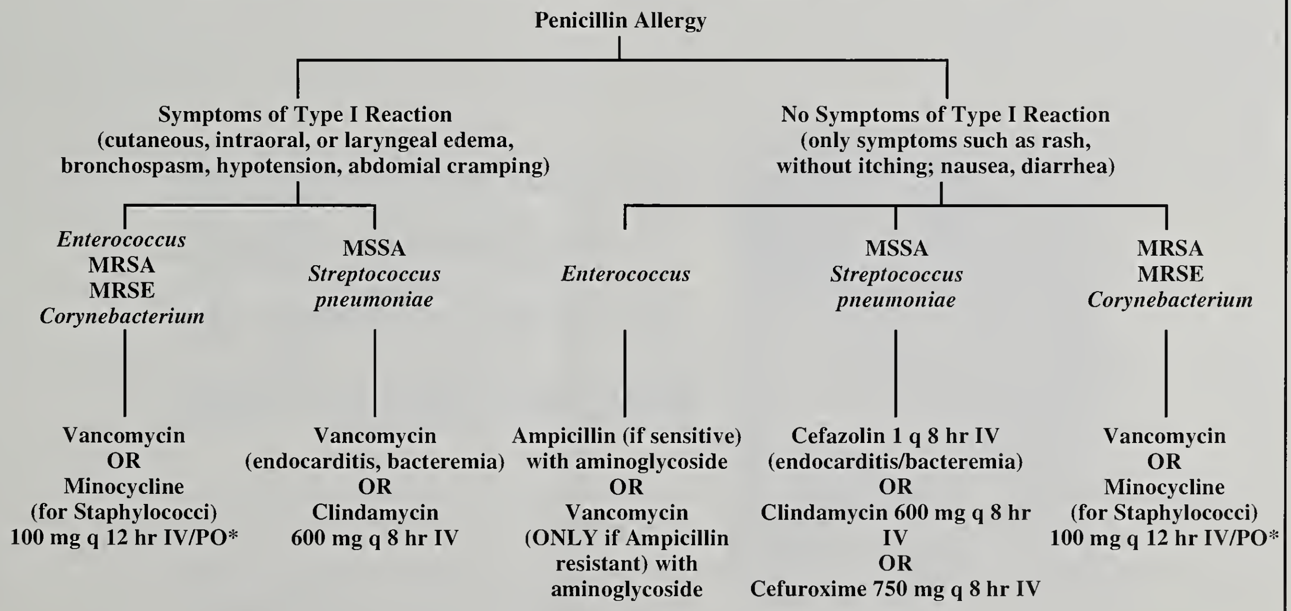
	Mean age (yrs)	*Mean est. cr. cl. (mL/min)*	*Mean dose (mg/day)*	*Infectious disease consult (%)*	*β-lactam allergy (%)*	*Culture positive (%)*	*Use outside of guidelines (%)*
Male	53.5±17	79.5±25	1627±482	29/43 (67)	12/43 (28)	10/43 (23)	6/43 (14)
Female	54.5 ± 21	71.8 ± 23	1445 ±499	9/21 (43)	9/21 (43)	6/21(29)	8/21 (38)
Total	53.8 ± 18	77±24	1564±492	38/64 (59)	21/64 (33)	16/64 (25)	14/64 (22)

2) use in a patient with a documented β-lactam allergy; and 3) cultures positive for methicillin resistant *Staphylococcus aureus* (MRSA), methicillin resistant *Staphylococcus epidermidis* (MRSE), *Corynebacteria,* or *Enterococcus* resistant to ampicillin. Over a 10-week period, 64 patient charts were reviewed and showed that 22% of the patients received vancomycin outside of the defined guidelines (Table 3). Although vancomycin use can encourage emergence of resistant organisms, the incidence of infections with VRE at Hartford Hospital is low, but it is increasing. The first case of VRE infection at Hartford Hospital was noted in 1992, but there were four VRE infections reported in 1994.

Patients with Penicillin Allergy

Many patients who give a history of penicillin allergy would be able to receive treatment with an alternate β-lactam antibiotic (ie, a cephalosporin). The prevalence of true penicillin allergy in the general population is between 1% and 10%, with a much smaller probability of having an anaphylactic reaction. It is well known that ampicillin can induce a maculopapular rash that may not be indicative of a true penicillin allergy. Rashes that are not accompanied by itching are most likely not immune mediated (ie, no histamine release) and therefore should not be regarded as contraindications for using other β-lactam antibiotics. A history of hives, difficulty breathing, and hypotension is

Figure 1.—Selected Antibiotic Treatment Regimens for Patients with Penicillin Allergies


Penicillin Allergy
Symptoms of Type I Reaction (cutaneous, intraoral, or laryngeal edema, bronchospasm, hypotension, abdomial cramping)
No Symptoms of Type I Reaction (only symptoms such as rash, without itching; nausea, diarrhea)
Enterococcus MRSA MRSE *Corynebacterium*
MSSA *Streptococcus pneumoniae*
Enterococcus
MSSA *Streptococcus pneumoniae*
MRSA MRSE *Corynebacterium*
Vancomycin OR Minocycline (for Staphylococci) 100 mg q 12 hr IV/PO*
Vancomycin (endocarditis, bacteremia) OR Clindamycin 600 mg q 8 hr IV
Ampicillin (if sensitive) with aminoglycoside OR Vancomycin (ONLY if Ampicillin resistant) with aminoglycoside
Cefazolin 1 q 8 hr IV (endocarditis/bacteremia) OR Clindamycin 600 mg q 8 hr IV OR Cefuroxime 750 mg q 8 hr IV
Vancomycin OR Minocycline (for Staphylococci) 100 mg q 12 hr IV/PO*

These guidelines are based on the current standards of practice at Hartford Hospital. MRSA=methicillin resistant *Staphylococcus aureus;* MRSE=methicillin resistant *Staphylococcus epidermidis;* MSSA=methicillin sensitive *Staphylococcus aureus.* *See reference 14.

suggestive of an immune mediated reaction and the patient should be regarded as allergic to penicillin and other β-lactams.[13] Figure 1 provides suggestions for alternate therapy in those patients who are allergic to penicillin that would help prevent the further development of resistant bacteria in this special patient population. In patients with symptoms of Type I allergic reactions, vancomycin is recommended for treatment of infections caused by methicillin-resistant staphylococci and other gram-positive organisms.

Summary

The increasing occurrence of VRE will dramatically affect the management of infections in hospitalized patients, as well as increase morbidity and mortality. Vancomycin is the therapy of choice for certain gram-positive infections in patients with significant allergic histories to β-lactam antibiotics and for infections with gram-positive microorganisms that are resistant to β-lactam antibiotics. Conservative use of vancomycin in the future may help to avoid the further development of resistant organisms.

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Tobacco Policy Recommendations of the International Association for the Study of Lung Cancer (IASLC): A 10-Point Program

INTERNATIONAL ASSOCIATION FOR THE STUDY OF LUNG CANCER

Preamble

The IASLC is an international organization whose goal is to decrease the worldwide lung cancer epidemic through research, education, and prevention methods. The IASLC members are surgeons, medical oncologists, radiotherapists, pulmonologists, radiologists, pathologists, epidemiologists, basic research scientists, and allied health professionals from 56 countries across six continents. The association sponsors a number of meetings and workshops and publishes the journal *Lung Cancer* to promote the exchange of ideas for reducing lung cancer mortality. Our association is aware that 85% of all lung cancer cases are caused by active cigarette smoking and that 3% of all nonsmoking lung cancer deaths are the result of exposure to environmental tobacco smoke. Furthermore, the regular use of pipes and cigars also increases the risk of lung cancer. Despite the fact that the association between tobacco smoke and lung cancer has been scientifically known for well over 30 years, lung cancer deaths continue to rise throughout the world. In developed countries the incidence of lung cancer for 1990 was 530,000. In developing nations the incidence of lung cancer cases was 430,000 in 1990 with an estimated 600,000 in 1995 and 10 million by the year 2025. Tobacco use is also associated with other deadly cancers including cancers of the oral cavity, larynx, esophagus, pancreas, bladder, kidney, and stomach in both men and women and cervical cancer in women. In addition, smoking is a major cause of coronary heart disease and is the leading cause of chronic obstructive lung disease.

Introduction

The following policy recommendations were developed by the IASLC in June 1994 in the hope that their worldwide implementation would help eradicate tobacco-induced diseases, including lung and other cancers, on a global basis. The IASLC firmly believes that health organizations and its individual members have a special responsibility to help society and governmental organizations adopt and implement tobacco programs and policies to decrease tobacco use worldwide. While the IASLC does not advocate an outright ban on tobacco products it does not oppose such actions. This policy statement outlines a reasonable and realistic health approach to significantly reduce smoking and tobacco use worldwide and the creation of a smoke-free world.

Tobacco Policy Recommendations

1. *Taxes.*—The IASLC confirms that a substantial and sustained tax increase on all tobacco products is the single, most effective public-health strategy currently available for reducing smoking and tobacco use among both adults and children and to improve the health of a nation. The Association recommends that governments consider using some proportion of such taxes to help fund smoking education and prevention programs, to help tobacco farmers convert to other crops, and provide basic health-care services for its citizens.

2. *Tobacco Advertising and Promotion.*—The advertising, packaging, and promotion of tobacco clearly increases consumption and entices children to experiment with tobacco by fostering the positive image that tobacco use increases the users social prominence, sex appeal, and maturity. The IASLC recommends that all forms of adver-

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Submitted by RAYMOND YESNER, M.D., Professor of Pathology Emeritus, Yale School of Medicine, and charter member of the International Association for the Study of Lung Cancer. This policy statement was approved at the recent 7th World Conference in Colorado.

tising and promotion should, at a minimum, be severely restricted, and preferably banned. Such measures should apply to all forms of advertising and promotion including tobacco company sponsorship of sporting events where the product or company logos are displayed and promotion of tobacco products through coupon offers and free distribution of all products. The IASLC also recommends a requirement for plain packaging and package-based health information for all tobacco products.

3. *Education and Counter-advertising.*— Information about the health risks of tobacco use are the cornerstone for most successful public-health efforts in reducing smoking and tobacco use. The IASLC recommends that all nations develop comprehensive tobacco prevention and educational programs and that a special effort should be made to reach individuals at high risk such as children, ethnic minorities, individuals with less education, and pregnant women. Programs should be developed for schools, communities, the mass media, and other channels as appropriate to reach both smokers and potential smokers within the context of the individual country's customs and culture.

4. *Children's Access to Tobacco.*—In most countries throughout the world, regular tobacco use often begins while the individual is still an adolescent. The IASLC recommends that the sale of tobacco products should be prohibited until at least age 18 and that laws regulating the sale of cigarettes and other tobacco products to underage individuals should be strongly enforced. In addition, the Association recommends that sales through self-service displays and sales of tobacco through vending machines should be banned completely.

5. *International Tobacco Trade.*—Some industrialized governments have aggressively assisted the multinational tobacco companies in promoting the sale of tobacco, especially cigarettes, in other countries; often these efforts are directed at developing countries and countries in the third-world who are still burdened with basic health problems such as nutritional deficiencies and infectious diseases. The IASLC recommends that all developed nations should refrain from promoting tobacco for export; no country should be pressured to weaken their laws and regulations on tobacco advertising and promotion, sales or distribution, and tobacco excise taxes.

6. *Exposure to Environmental Tobacco Smoke.*—Scientific evidence has conclusively established that involuntary exposure to environmental tobacco smoke (ETS) is a cause of lung cancer in adults as well as a major cause of respiratory symptoms and diseases (bronchitis, pneumonia, and asthma) in children. The IASLC recommends that worldwide efforts be adopted that eliminate nonsmoker exposure to ETS. At a minimum smoking should not be permitted in health-care facilities, workplaces, schools, airplanes, buses, trains, and other forms of public transportation, restaurants, and all indoor public facilities.

7. *Nicotine Addiction.*—All tobacco products contain nicotine and it is nicotine that is directly responsible for the addiction associated with tobacco use. The IASLC recommends that nicotine levels in cigarettes and other tobacco products be reduced over time to nonaddicting levels.

8. *Tobacco Growing and Forming.*—Many countries actively support the growing of tobacco including offering subsidies to farmers which guarantee a base price for their tobacco. The IASLC is sympathetic to those farmers whose income comes substantially from the sale of tobacco and recommends that governments provide economic assistance to farmers in pursuit of other occupations or to help grow crops other than tobacco. The Association strongly believes that the easiest means of accomplishing this is through new excise taxes on cigarettes and dedicating some portion of the tax to assist tobacco farmers.

9. *Health Professionals' Responsibility.*—Health professionals can play a significant role in reducing smoking in their communities. The IASLC recommends that all health professionals should receive proper training to counsel their smoking patients to quit and to take an active role in support of tobacco control initiatives within their own communities.

10. *Lung Cancer Diagnosis and Treatment* .—Even if smoking were completely eliminated today, lung cancer would continue to be a significant problem for decades. The IASLC strongly supports the continuation of basic and applied research programs for the better diagnosis and treatment of lung cancer as a means of increasing survival and thereby reducing the overall lung cancer mortality rate.

MORBIDITY AND MORTALITY WEEKLY REPORT

Physician Vaccination Referral Practices and Vaccines for Children—New York, 1994

ALTHOUGH vaccinations are among the most effective preventive public-health measures available, many children are not vaccinated on time.[1] One identified barrier to timely vaccination is referral of children by primary-care physicians to other medical settings for vaccination.[2] This report summarizes a survey by the New York State Department of Health of vaccination referral practices among New York physicians and describes the implementation in New York of Vaccines for Children (VFC), a national program making federally-purchased vaccines available at no cost to health-care providers for administration to eligible children.[3]

During April 1993, a random sample of 1,137 licensed pediatricians and family practice physicians (from a total n=5,392) in New York were surveyed by mail about vaccination practices. Of 752 (66%) responses, 502 (67%) were from actively practicing primary-care physicians. Of these, 250 (50%) referred all or some of their patients elsewhere for vaccinations. Of referring physicians, 228 (91%) referred patients to a local health department clinic; 109 (44%) had increased the number of patient referrals during 1983-1993, while seven (3%) had decreased referrals. In addition, 63 (25%) reported that the number of well-child-care visits had decreased during 1983-1993, while five (2%) reported increases during that time. Of the 250 referring physicians, 246 provided reasons for referral and rated those reasons as "very important," "somewhat important," or "not important" (Table 1). Financial hardship was a "very important" reason for referral for 217 (88%) of those surveyed; the lack of vaccination coverage by private insurance was "very important" for 132 (54%). Physicians also were asked whether the government should underwrite the cost of mandatory vaccinations. Overall, 409 (54%) respondents indicated that some or all of the costs of childhood vaccination should be underwritten.

Since October 1, 1994, free vaccine has been available to VFC participating providers in New York. Categories of federally eligible children aged <19 years include those on Medicaid, those who are uninsured, those who are underinsured who visit federally qualified health centers, and American Indians/Alaskan Natives. New York also provided free vaccine to underinsured children who receive care in any medical setting and any child served at a local health department.

Medical-care providers were recruited for VFC through articles published in professional organization newsletters and by mailing of registration packets to licensed pediatricians, family physicians, osteopathic physicians, and medical facilities. As of 27 December 1994, a total of 1,378 physician practices in New York (including at least 1,972 individual physicians and at least 362 health-care facilities) were participating in VFC.

To determine the extent of enrollment by Medicaid providers, the list of VFC enrollees was compared to a list of providers who billed Medicaid for childhood vaccines during federal fiscal year 1993. Of 2,169 physicians who billed Medicaid for childhood vaccines in 1993, a total of 1,213 (56%) had enrolled. Among the 166 physicians who submitted a minimum of 1,000 claims for individual vaccines, 143 (86%) had enrolled, while 653 (68%) of 956 physicians not yet enrolled had submitted fewer than 50 claims.

In September 1994, the New York State Department of Health conducted a telephone survey of health-care providers who had returned registration forms and declined participation in the program to determine reasons for nonparticipation and to guide future recruitment efforts. Of the 41 physicians who had declined, 29 (71%) were contacted. Of these, five (17%) were retired, five (17%) did not accept patients aged <19 years, six (21%) were subspecialists or in academic medicine and did not provide vaccinations, six (21%) indicated that most of their

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Table 1.—Reasons for vaccination referral by physicians,* by importance—New York, 1993.

	Very important		*Somewhat important*		*Not important*	
Reason	*No.*	*(%)*	*No.*	*(%)*	*No.*	*(%)*
Financial hardship for patient	217	(88)	14	(6)	15	(6)
Private insurance not covering vaccinations†	132	(54)	56	(23)	58	(24)
Free vaccine to physicians discontinued by health department§	110	(45)	34	(14)	102	(41)
Vaccine purchase costs for physician	94	(38)	56	(23)	96	(39)
Insufficient Medicaid reimbursement	74	(30)	43	(17)	129	(52)
Vaccine availability	36	(15)	42	(17)	168	(68)
Vaccine-related liability	24	(10)	31	(13)	191	(78)

*N=246 of 250 physicians who reported referring patients elsewhere for vaccinations.

†As of April 1994, all New York State-regulated major medical health insurance policies, exclusive of self-insured entities, were required to cover all childhood vaccinations.

§In 1986, the New York State Department of Health discontinued distribution of free vaccine to any physician through county health departments.

Source: New York State Department of Health.

patients would not be eligible, one (2%) had multiple reasons for not registering, and the six (21%) with patients who could benefit from VFC agreed to register as a result of the phone call.

From 15 September 1994 (the first date vaccines could be ordered), through 27 December 1994, a minimum of 2,496,000 doses of vaccine had been ordered and approximately 2,456,000 doses were shipped to VFC participants. The average time between placement of orders and receipt of vaccine by providers was one week.

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Editorial Note: In the United States, approximately two million children need one or more doses of recommended vaccines.[4] In a 1993 retrospective survey of children entering kindergarten in New York, only 53% had been appropriately vaccinated with the recommended vaccines by age two years.[5] Important barriers to timely vaccination include missed opportunities to vaccinate at each health-care visit, inconvenient clinic hours, inadequate parental awareness of the need for timely vaccination, inadequate vaccination tracking, the costs of vaccines, and the referral of children from the private sector to the public sector. This report demonstrates that vaccination referrals, in part attributable to vaccine costs, are common among New York primary-care providers. Implementation of VFC is expected to reduce these financial barriers.

The actual number of VFC participants in New York probably is underestimated by VFC enrollment figures because many physicians work in facilities or in group practices where only the physician-in-chief is registered in the program. In addition, the impact of the program on vaccination coverage and overall occurrence of vaccine-preventable diseases cannot be determined yet. However, VFC has allowed New York to increase provision of vaccine to more children in primary-care settings where they first seek care. In states where vaccines have been made available for all children, vaccination rates of preschoolers are approximately 10% higher than the national average (AG Holtmann, University of Miami, unpublished data, 1993).

The Childhood Immunization Initiative (CII) has designated vaccination of preschool-aged children a national priority and has established 1996 and year 2000 goals of vaccinating at least 90% of children by age two years with the recommended number of doses of diphtheria and tetanus toxoids and pertussis, polio, *Haemophilus influenzae* type b, hepatitis B, measles, mumps, and rubella vaccines. The five strategies of CII, which address both financial and nonfinancial barriers to vaccination, are to 1) improve the delivery of vaccines; 2) reduce the cost of vaccines for parents (VFC); 3) enhance awareness, partnerships, and community participation; 4) monitor vaccination coverage and disease; and 5) improve vaccines and their use. VFC, as an integral part of this initiative, will assist physicians and other health-care providers in reaching these national goals.

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CPRO Mammography Outreach Project

Regular screening mammography reduces mortality in older women. Yet, its use in this age group remains low, according to survey data. Connecticut Peer Review Organization (CPRO) examined mammography use rates in elderly women in Connecticut based on Medicare Part B claims data. The state mean use rate was only 32.9% for women age 65–74 in 1993. In addition, there were three areas with especially low rates identified: Bridgeport, Naugatuck Valley, and Windham.

Based on these findings, CPRO has initiated a pilot Mammography Outreach Project for women Medicare beneficiaries age 65–74 in those three areas.

Because physician advice has been identified as the single most effective motivating influence for older women to obtain a mammography, an effort to reach physicians and their office staffs is planned. CPRO will be conducting a series of physician and staff conferences in the Naugatuck Valley, Bridgeport, and Windham areas to discuss the mammography claims data and other mammography information for those three areas. Moreover, mutual goals with the American Cancer Society's physician outreach program have been identified in Bridgeport and Windham. In this program, physician offices will be visited by a physician–nurse team from the ACS, and information about cancer screening for the office staff and patients, including a videotape, will be distributed.

A beneficiary outreach effort is also being developed through existing health groups in each community. The beneficiary and physician outreach strategies are scheduled for March 1995 through August 1996. It is hoped that the efforts used in this pilot project will increase awareness that mammography use in older women in Connecticut remains well below national goals set by the National Cancer Institute, and that use can be increased through action at the local level. For further information, call Jeanette Preston, M.D., at 632–2008.

Never Again, Lisa

Childhood Diabetes in a Dysfunctional Family

ELLEN L. TOTH, M.D.

LISA'S grandfather worked hard on the farm where the German family had made their new life and he also drank hard, especially during the depression. Lisa's father tried to follow his dad's example of hard work but somehow there was never the same challenge. There was more time to drink. Lisa's mum was a good woman who believed in the difference between right and wrong. She had inherited her own mother's distaste for the cold barren land, but hid this from her family. Lisa was the third child born to the couple, and during her childhood there was only occasional uneasiness, when her mother was unsure of Lisa's father's whereabouts. When she attempted her gentle but untolerated requests for his physical or emotional presence, he could not stand it. He had so little to give.

At age 11, Lisa was diagnosed. Then came the repeated hospital visits. Needles, instructions, and back to school. It was a daily struggle to give herself a shot. Two years later, when the second episode of ketoacidosis occurred, Lisa was sent to the large medical center, to the specialist. He had both Lisa and her mother go through a week of diabetes education, but he spoke only to her mother, who nodded although she hardly understood English well enough to comprehend. Nevertheless, they returned home full of good intentions.

A week later, Lisa asked her mother about the diet that had been prescribed for her. The answer was that Lisa's father did not have enough money to pay for it. The mother had already pleaded with her husband for the special treatment. Yes, she had pleaded, she had cajoled, and she had even given in to his sexual advances in exchange for fulfillment of Lisa's needs. He, in turn, had learned of a new way to manipulate his wife and daughter; Lisa became a pawn in a game of domination and deceit. Meanwhile, in junior high, she craved to conform. Drugs, sex, and alcohol soon drove her back to the large medical center. The specialist shook his head, and again talked only to her mother. He then called in a child psychiatrist. The only solution, they decided, was "residential treatment" in a long-term care institution for handicapped children. Lisa stayed for four months and did well. But her handicap was different, it was invisible. She wondered what her father would say when she returned home.

She had reason to be worried. While she had been away, her parents had enjoyed her absence and the lack of preoccupation with her insulin, her hypoglycemia, her testing, and her diet. They told no one that Lisa was under the care of a psychiatrist and secretly hoped the psychiatrist had cured her. Lisa harbored the same hope, and came home willing to play by the rules. But it was not to be. The neighbors' questions, the kids at school, the uncertain flow of money, the drinking, and the fights, all told on Lisa. Her rebellion flared again. She managed to earn a reputation with the boys. There was talk, which her parents feared more than anything else. Then an incident occurred that would change Lisa's life.

Late one night, Lisa came home after a few days of partying. Her mother had had some idea where she was, but was having increasing difficulty explaining Lisa's behavior to her husband. He was tired of his depressed wife, tired of her inability to handle Lisa and her diabetes, tired of the looks he was getting in town, and tired of his drinking buddies, who were no longer fun to be around. Somehow he knew he had failed his family. He decided he would change, and he steadied his nerves with a fifth of scotch as he waited for Lisa.

At first he spoke kindly and told her how things were going to be different. His wife was impressed. He was sorry for his neglect of them. He would look after them.

ELLEN L. TOTH, M.D., University of Alberta, Edmonton, Alberta, T6G 2R7., Canada. Reprinted with permission from *Ann Intern Med* 1994; 121:979-80. *Requests for Reprints:* Ellen L. Toth, M.D., Department of Medicine, 2F1.29 Walter C. Mackenzie Health Sciences Centre, University of Alberta, Edmonton, Alberta T6G 2R7, Canada.

Lisa would have a curfew. Lisa would eat on time. He would supervise Lisa's injections. Lisa would go to church. Lisa would not see her friends again. Lisa would . . . Lisa began to protest. He became more emphatic. The tension escalated. Lisa threatened to leave; he said he would not allow it. Lisa raced upstairs to pack. When she came down, he was waiting on the stairs with his shotgun. Trapped, struggling to get by him, she appealed to her mother, who tried to take the gun. There was a scuffle. Lisa ran as a shot was fired, shattering the railing, missing her by inches. She kept running, and did not stop until she had arrived at her sister's house. Rumors of the incident spread all over town. The doctor sent Lisa back to the specialist, who once again consulted the psychiatrist, who now recommended "placement" in a foster home in the city. The parents agreed, even as the father begged for forgiveness. Lisa remained confused. But she could not forgive.

At the foster home she met some good people. She tried to give school another chance, but was too far behind. And she still constantly fluctuated between severe hypoglycemia and impending ketoacidosis. She knew she was not eating correctly, but she had neither the knowledge nor the confidence to ask for help. She dropped out and got a job in the front office of a secondhand car dealership. Here, she also made good friends. There were more parties. She moved into an apartment with a girlfriend and bought a red sports car. For two years she lived a carefree life, friends with everyone, yet close to no one. Her needles were a secret. Her fatigue was nobody's business. She saw her thin figure as attractive and learned that she could lose weight at will by skipping insulin for a day or two. Most importantly, she finally learned how to avoid hypoglycemia by cutting her insulin dose in half.

Then one day she awoke to blurred vision. Her right eye troubled her; she felt it "pop" and she saw red. The first doctor told her to rest. The second doctor sent her to an eye specialist. But before she could keep that appointment, she was back in the hospital, unconscious. Even in the hospital, her insulin dose was lowered, and lowered, yet she continued to experience hypoglycemia. She was given pills for her blood pressure. The eye specialist did see her, and said that he was not sure. The diabetes specialist sent her back to the education course. This time she really tried. She learned to test her own blood, but couldn't afford a testing machine. She had those car payments. She saw the eye specialist regularly. He started laser treatments on her left eye, saying it was too late to save the right. One day she couldn't get out of bed. She tried to call for help, but her speech was slurred. Her roommate took her back to the emergency room. Was she a smoker, they asked? Was she on birth control pills? "Yes," she said to both questions. At 22, Lisa had suffered a stroke.

Following her partial recovery, her mother asked her to come home. Lisa refused; she would need to be close to a kidney machine. With her failing vision, slurred speech, and constant doctors' appointments, she lost her job. For a month or two her friends helped out, but she landed back in the hospital with intractable vomiting. She was ketoacidotic, uremic. They prepared the shunt. A social worker spent time with her. She lived from one dialysis exchange to the next and heard that she was on a list for a kidney. Her mother and sister visited, but they didn't know what to say. Her brother was in a serious motor vehicle accident while drinking. Her sister would soon be moving to Quebec.

In addition to dialysis nurses and social workers, she discovered new soul-mates in other diabetic patients with kidney disease. They talked about transplants. She found new friends at the Canadian National Institute for the Blind. For the first time in her life, she started taking an interest in her diabetes; she agreed to four insulin injections a day, and tested her blood with a new talkingmeter provided by the Kidney Foundation.

The day came when she got a kidney. When she awoke from the transplant, she felt a rough hand clutch hers. She heard her father's voice and her mother's beside him.

"Lisa, you can come home now," they both said. "We will look after you." But it was too late. She was glad to remain in her own world of doctors' visits, immunosuppression, and creatinine checks. Her new kidney did well. Because of her peripheral neuropathy, she could not learn Braille. But there was television. Because she was unemployable, they wouldn't give her a dog, but she bought a budgie, and they talked.

It is now eight years since Lisa got her kidney, and since I have had the privilege of knowing her. Lisa is always happy now when she comes to the hospital; it is the only place where anyone has ever seemed to care. Her hypertension remained difficult to control until she had a myocardial infarction. Her kidney continues to perform. Lately she is bothered by nausea and early satiety, but it is responding to cisapride. Her main concern these days is her mother's advanced breast cancer. Lisa doesn't know what will happen to her father when her mother dies.

But she knows one thing: it won't be her problem. She has been able to talk about "the incident" in Diabetes Support Group. She has learned that it was not her fault. She thinks the shooting attempt saved her life, giving her the impetus to leave home for good. She tells the medical students, to whom she now lectures annually, that she feels better physically than ever before. Then I painstakingly list her complications for their benefit, and tell them that I hope they will never again see a case like hers. Never again, Lisa.

Guest Editorial

Death, Dying, and Assisted Suicide: The View of a Pain Managment Physician

Dr. Rama P. Coomaraswamy's editorial, [*Conn Med* 1994; 58:551-6], with the same title was very well written by an obviously compassionate human being. As the codirector of a hospice program, as a former pediatrician, pediatric cardiologist, anesthesiologist, critical-care director, and director of pain services, I have had the opportunity to participate in the dying process of all aged people. Some stick in my craw with a bad taste; some I can see before me just as though it were yesterday. To this day I wonder about some of our decisions. I say "our" because they never were really mine. They were always the patient's or the family's.

There was the neonate born with multiple severe congenital anomalies (called arthrogryposis multiplex congenita)—a condition not supposed to have mental retardation as a component. The child was grossly malformed and could not swallow or eat because of facial and jaw anomalies. At the time I was chief resident in pediatrics working in the neonatal ICU of a major Catholic university hospital. We, meaning the parents, the chief of neonatology, the ethicist, and I decided not to intervene—to let nature take its course. The child died of starvation and dehydration. It took about one month. The child died during a night I was on call with the mother and the father holding her in their arms.

There was the night I was on call in the ICU as an already "grown-up" doctor when I came through the door and the guy in the second bed arrested—some greeting. The regular nurse was on break so the on-duty nurse and I rapidly resuscitated the man (who was not my patient). I quickly learned that he was a DNR patient. Boy, had we goofed. Well, he lived to walk out of the hospital and curse his family for making him a DNR.

Then there was a brave Native American with far advanced carcinoma of the kidney with intractable pain secondary to advanced local spread to all the retroperitoneal structures including nerves. I told him I was new at pain management but had some advanced training and would be glad to help if I could. I offered him consultations at Yale, Harvard, and Memorial Sloan Kettering. This was in 1985-1986. Pain management wasn't cool. It just wasn't the "in thing," and frankly, there weren't a lot of people who knew how to get to first base, let alone to third. He said he trusted me and let me do what I thought was right. He lived about one year, had oral narcotics, neurolytic blocks, and placement of a long-term epidural catheter for narcotic and local anesthetic infusion. He had quality time. His family, friends, nieces, and nephews all visited him and he enjoyed their company. He went the way of most—from walking, to the wheelchair, to the bed, to death. I saw him many times at home; would sit and talk, mostly about nothing, with him, and was his and his family's friend to the end. The tumor eventually eroded through his skin, and he was one heck of a nursing nightmare. In fact, his nurse got the American Cancer Society's nursing award for his care. He died pain free and had quality life until his death.

Then there was a fellow community physician with advanced carcinoma of the prostate. Almost every bone of his body was riddled with cancer. While in the hospital, he broke his arm, his clavicle, and finally his neck. He had ultra high doses of IV morphine, epidural morphine, and local anesthetic. We never really could control his pain. He died sedated but in significant pain.

How about the lady currently dying with amyotrophic lateral sclerosis? She also has a vascular pain problem for which I saw her. As Director of Hospice, I told her that when life was no longer bearable for her, I could sedate her enough to make her unaware of her surroundings, as well as try to control her pain.

The stories are numerous, but they mostly all bear on the issues of pain and suffering. The two are not mutually exclusive and they are not always solvable, despite the widely held belief that they are. Pain is far easier to treat than suffering. The patient who has not made his peace with his family, God, or other matters that trouble him is the worst nightmare to try to treat. The solution lies within that person—not within the medical, judicial, or ethical community. Almost no one can truly help in such instances. Such unfortunates must find help within themselves. I believe we can successfully treat all pains; and if we cannot, we can sedate the patient to the point of being unaware of his or her surroundings. We have even used constant infusion ketamine or barbiturate infusion to provide anesthesia until death.

The issue of elimination of nutrition and foods remains controversial. Every case must stand on its own merits. The Academy of Hospice Physicians has published *Primer of Palliative Care* (1994), which is a brief well-referenced booklet dealing with the everyday issues of palliative care in the terminally ill patient. It should be required reading for all physicians.

continued on next page

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References:
1. A. Morales et al., New England Journal of Medicine: 1221. November 12, 1981.
2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical Letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

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I wonder how many doctors have had the opportunity (or dodged it) to get close to, sit with, to hold the hand of a dying patient; yes, even to be there at the time of death. This type of care is, and continues to be, an enormously draining experience. It truly gives one an irrevocable respect for life. We, as physicians, should be guardians of that respect.

Edward P. Hargus, M.D.
Director of Pain Management Services
Lawrence and Memorial Hospital
New London

Yale Anxiety and Depression Disorders Clinics Expand

Physicians at the Yale University anxiety and depression disorders clinics have begun offering free treatment at several Connecticut health centers as part of ongoing research studies.

Dennis S. Charney, M.D., professor of psychiatry at Yale, and Andrew W. Goddard, M.D., chief of the anxiety disorders clinic, lead the satellite programs which enable researchers from the Yale School of Medicine and the Department of Veterans Affairs Medical Center in West Haven to include patients in their studies who normally would not have access to such new treatments.

The Yale University anxiety and depression disorders clinics conduct several studies to measure the effectiveness of medications used to treat disorders such as panic disorder and depression.

Within the next two months, the Yale clinics will extend their services in three satellite offices. Yale researchers will spend one day a week at the following locations:

Wilkins Center
7 Riversville Road, Greenwich

Branford Counseling Center
14 Sycamore Way, Branford

Access Behavioral Health
350 Fairfield Avenue, Bridgeport

For more information, call Gale Banks, clinic coordinator at the Yale Anxiety Disorders Research Clinic, (203) 789-6985.

50 Years Ago

From *The Connecticut State Medical Journal*

February 1945

The Post War Problem of Tuberculosis

COLE B. GIBSON, *Meriden*

The Author. *Superintendent Undercliff Sanatorium.*

THE optimism shared by many a few years ago that tuberculosis was rapidly approaching the state of a controlled disease is being shattered and dissipated by discouraging events directly connected with World War II. During the period between the World Wars the death rate was almost halved in the United States, England, the Scandinavian countries, Germany, and Austria.

In those conquered countries where real progress had been made it is now clear, even with incomplete reports, that the tuberculosis problem may be even more serious than ever. For instance, the Avenir Medical reports that tuberculosis has risen 20-30% in France, and takes malignant forms rapidly fatal especially in young people. It is not only in France but among the workers sent abroad that malnutrition and tuberculosis are rampant. "French doctors see with horror the ever increasing number of French workmen sent to Germany who return to their country to die of rapid phthisis."

In Rome, 3,450 persons died from the disease in the first half of 1943, as compared with a prewar average of 1,700. Deaths from tuberculosis in Belgium increased more than 50% after one winter of German occupation, and the number of cases of tuberculosis rose from 70,000 in December 1941 to 110,000 in February 1943. Also, in Holland, there was an indicated increase of well over 50% in the death rate during the period of the war, with an especially rapid increase in 1943.

Lord Horder, in the House of Commons, reported that "galloping consumption," which had been uncommon for two generations, is today a common experience in Belgium, France, and Greece. Germany, too, has had a 25% increase in its tuberculosis death rate during the period from 1939 to 1942, and recent fragmentary reports indicate a continuance of the climb.

In the early days of the war, England, Scotland and Wales experienced an increase of from 7 to 10 per cent in tuberculosis deaths. This status has remained about level during the past two years; and Canada, Australia and New Zealand have maintained a rate slightly less than the immediate prewar period.

Fortunately, the United States through 1943 has been able to maintain its record of decline in the death rate, the figure for 1943 having been about 42 per 100,000 as against 47 per 100,000 in 1939. For still one more reason then the United States may give thanks that thus far its people have not been subjected to the privation and suffering that follows in the wake of the crushing, devastating machine of war. There are some who predict that our picture may yet be darkened. These point out the long continued physical strain and effort of war production, and the dislocations due to war time housing and nutrition may yet have a lowering effect upon resistance to tuberculosis. They point also to mass movements of certain of the worker population with the attendant crowding and greater opportunity for exposure to tuberculosis as a possible factor in an increase in the disease.

They also are aware that on June 30, 1941 there were being paid 53,589 service-connected active disability awards to veterans of World War I for tuberculosis as the major disability. In addition, 10,135 World War I veterans were receiving pensions for nonservice-connected tuber-

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Reprinted from the *Connecticut State Medical Journal*, February 1945.

culosis, and that as of the same date, 48,330 death claims had been paid to dependents of veterans who died from the disease.

In other words, in a period of slightly under 24 years, one veteran alive or deceased of every 42 individuals who served in World War I was known to have suffered with tuberculosis of a compensable or pensionable degree.

In light of this experience with World War I, and realizing the greatly increased numbers in our armed forces in World War II, it is perhaps natural that some are apprehensive as to our control of tuberculosis in the years that lie ahead.

The problem in the devastated countries is now acute and critical. For the present, it is an additional burden to be shouldered by the United Nations in the form of providing medical, nursing, and segregation facilities to the peoples now under their control. This is, of course, in addition to the necessity of furnishing this bereft humanity with food, clothing, and shelter. Eventually, the nations, themselves, must take over and by their own endeavors meet this most difficult medical problem at the same time that they are attempting to raise their standard of living.

In the United States there are several favorable factors that may have a gratifying influence on the trend of our tuberculosis mortality. Preinduction chest x-ray examinations undoubtedly prevented large numbers of active cases of tuberculosis from entering the armed forces where they would have been a source of danger to themselves and to their comrades.

Moreover, in many instances, the disease was discovered in unsuspected individuals who had early and curable disease. Efficient follow up machinery placed the majority of these people under observation, and they received treatment much earlier than might have been the case if Selective Service had not been in operation.

In addition, vastly improved medical care in this war has brought a wider and more frequent use of the x-ray upon those actually in service, with the result that here again nascent tuberculosis is brought to light much more promptly. The organization for handling such cases is now rounding into efficient form and it should pay valuable dividends in the way of cured and arrested cases.

The problem of the tuberculosis veteran is being given profound study by some of our foremost Army, Navy, Public Health, and civilian authorities. There is good reason to anticipate that the end results of the treatment of tuberculosis veterans of this war will be better than those attained in veterans after the last war.

It is most certainly to be hoped that some method will be devised whereby the veteran with active disease may be persuaded to remain upon institutional regimen until arrest or cure has been achieved. Actually, the veterans of World War I were often encouraged to leave sanatoria or Veterans' Facilities and interrupt treatment by reason of the fact that financial benefits were greater for the patient out of the hospital than for one who remained in the institution. Very often, such patients returned to home communities with no coordination of medical information with the medical authorities of the area.

Similar instances have occurred with veterans of World War II, but the Veterans' Administration is aware of this inexcusable lapse in proper treatment; and plans are now being effected whereby systematic and prompt reports on self-discharged veterans with active tuberculosis will reach local health authorities. This is indeed a forward step. In this phase, as in others, the Veterans' Administration is developing a program that is evidence of a highly constructive attitude.

Another favorable factor is the establishment of a tuberculosis control division in the Public Health Service. The function of the new division will be:

"1. Developing and effecting means for the prevention, treatment, and control of tuberculosis.

2. Assisting states, counties, health districts, and other political subdivisions of the states in establishing and maintaining adequate measures for the prevention, treatment, and control of such diseases.

3. Preventing and controlling the spread of tuberculosis in interstate traffic, and any other activities with respect to the prevention, treatment, and control of tuberculosis which may be authorized to be performed by the Public Health Service."

The sum of $10,000,000 was authorized in the act of 1944 for this new work and will be available as funds are appropriated.

Here in Connecticut, the State Tuberculosis Commission through its Department of Tuberculosis Control has already made much progress in extending the program of tuberculosis case finding and follow-up work. Mass x-ray surveys in industrial plants, schools, and other organizations are being carried out in increasing tempo and on an ever wider range. Unsuspected cases of tuberculosis are being unearthed by this method; and appropriate handling of the tuberculous cases so discovered is not only contributing to arrest and cure of the disease in these people, but by recognizing and segregating them there is reduction in the community of the number of open cases of the disease which are sources of infection for the remainder of the population.

Along the lines of the planned activity of the United States Public Health Service, and quite possibly in conjunction with that Service, plans are now under way for the development of several Tuberculosis Control Centers in the state. With such centers in operation, the Tuberculosis

Commission envisions an even more accentuated drive for early diagnosis, a helpful consultation service both for people suspected of tuberculosis and for the post sanatorium patient who requires follow up and observation.

It is planned that these centers will be so located as to make their service readily accessible and available to all the people of the state in what appears to be a well coordinated and concerted drive towards further reduction of tuberculosis mortality in Connecticut.

The post war problem of tuberculosis will undoubtedly be of even more than serious import in other countries, and in the United States it may be difficult and trying. However, here at home, and particularly in Connecticut, there is keen awareness of the potentialities. It would seem that the steps taken and provided for are indicative of the type of public health thinking which is essential to the control of disease, even such a scourge of mankind as tuberculosis.

CALL FOR PAPERS

Members of the Connecticut State Medical Society reading papers before other organizations are invited to submit their papers to the Journal for consideration. Authors preparing manuscripts for submission to *Connecticut Medicine* should consult **Information for Authors**. This is published in most issues of *Connecticut Medicine* or may be obtained from the Journal office. Adherence to the instructions will prevent delays both in acceptance and in publication.

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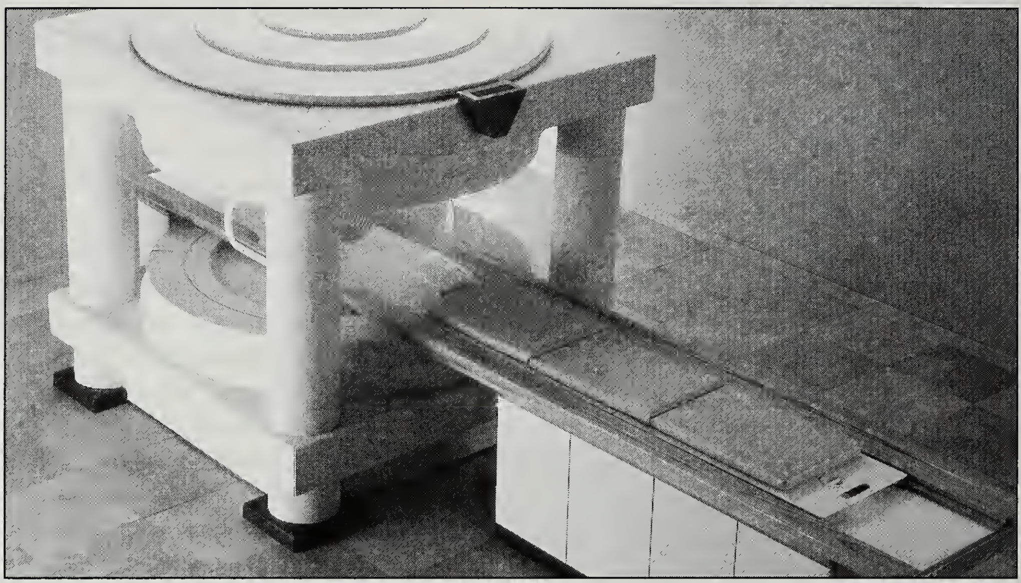

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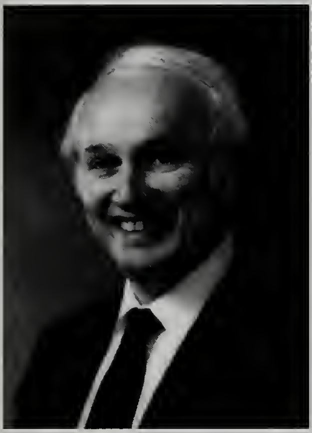
A Day in the Life of Charlotte O. Remaniss, M.D. (The Story Continues, Episode 3)



In the first episode (*Conn Med* 1994; 58:749), Dr. Remaniss is criticized for failing to meet the monthly Productivity goal set for her at MegaHealth Plan, where she is employed. Episode two (*Conn Med* 1995; 59:51) finds Dr. Remaniss accused of fraud by Simon Smeilknot, not because she billed for a service she did not provide, but for not billing a patient for whom she felt sorry. It is still Tuesday, December 3, 2011, although the hour has progressed to 12:45 PM. Dr. Remaniss is seated at a table in the MegaHealth Plan cafeteria.

''Derek, please pass the pepper.'' (Titles were forbidden during mealtime hours.) Dr. Remaniss looked from face-to-face at the members of her Careteam. Derek...Elliot... Nancy... Rhonda.... She couldn't unburden herself with any of them—even if they weren't already angry because of her actions; actions that decreased their incomes for the next month and brought them scorn from other Careteams. There were no friends, just informers. MegaHealth Plan, like others, operated a program to reward snitches.

Alone and frightened, in the midst of many, Charly's mind slipped back to 1998. Dr. Remaniss, using the mapping results of the HGS (Human Genome Study), combined her interests and abilities in biochemistry, genetics, and minor surgery to design a biological 'glue' for all except the worst of superficial wounds. Overnight, the market demand for staples and sutures, *per se*, dropped almost by one-half. In 1996, the FTC had brought an action against the AMA for supporting the free distribution of medical information. The case had stirred public attention, but the anti-intellectual mood of the era continued against physicians and their professional bulwarks. A precedent was set to increase competition in medicine by allowing medical procedures to be patented. Not allowed simply to share her work, Charly was one of the initial few whose discoveries were required to be patented. Insurance companies, pharmaceutical firms, and entrepreneurs, not to mention oil companies, computer giants, and others who smelled a buck, all bid for her patent. Dr. Remaniss, overwhelmed and uncomfortable, had instead sold the patent for almost nothing to the founder of MegaHealth Plan.

Mort D' Zeased, M.D., said founder, was a mentor and a legend in his time. A lifetime of achievement and high moral purpose was his legacy. A legacy because it was only weeks after he convinced Charly that her accomplishments should be distributed to humanity at a minimal charge, that he had died. His successors at MegaHealth Plan had no such scruples, and Dr. Remaniss—less than an adept in the business world—had not foreseen that her contribution to mankind was controlled by MegaHealth Plan in the event of Dr. D'Zeased's death. (MegaHealth Plan was only afterwards so named. Until then, it had been but one more rinky-dink health maintenance organization in a sea of rinky-dink managed-care companies.) She had retained a one percent interest in BioGlue, satisfying the Federal Trade Commission, and making her very, very wealthy. She remained, however, very, very unhappy.

A part of her deal with Mort was that she would work for MegaHealth Plan. There was no guarantee of employment. However odd it was for a physician, she just had not thought about Mort dying. Dr. Remaniss, during the early years at MegaHealth Plan, received great deference and appreciation. Her own modesty served her ill, though, since the passage of time clouded the memories of those who knew that she was responsible for the wild success of MegaHealth Plan. And those who did remember, often only did so jealously.

When the chimes sounded, ending the lunch hour, Dr. Remaniss was holding the pepper, poised upright over the salad she had neglected to eat. Derek, across the table, was looking at her oddly.

Theodore Zanker, M.D.
President

Reforming The Reformers?

When President Clinton unveiled his health care reform package, much of it seemed very familiar. The foundations of his plan—quality, responsibility, simplicity and choice—also happen to be four key principles of M.D. Health Plan.

Quality. M.D. Health Plan is the only plan sponsored by the Connecticut State Medical Society. The Society's—and its members'—commitment to providing the finest health care to people across the state is well documented.

Responsibility. As Connecticut's physician -sponsored and physician-directed HMO, we believe that the best medicine for patients is practiced by physicians.

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A Chance Now to Rediscover First Principles

ROBERT U. MASSEY, M.D.

ONE of the things you learn from history is never to take the present too seriously; the present, you find, doesn't last very long, it can never be a permanent condition. In fact, the past is the only reality we know; the present is gone before you know it, and the future, like the weather, is unpredictable, at least if you push out much beyond a week or so. In his wonderfully lucid book, *A Brief History of Time* , Stephen Hawkin, writing of time's arrow, asks "why do we remember the past and not the future?"[1] Why does time seem to us to move in the direction that it does? He concludes that time's arrow follows the second law of thermodynamics, toward entropy, or disorder, and also outward in the direction of the expanding universe that began with the the Big Bang. History, "our psychological arrow of time," moves along that way too, and because one day is pretty much like the next, should not present us with discontinuities or surprises. But it does, perhaps, Hawkin might say, because the universe is lumpy, not smooth, and that is all traceable to Werner Heisenberg's uncertainty principle.

Such big surprises as the reunification of Germany and the collapse of the Soviet Union were not supposed to happen in this century. Universal health insurance was to be here in 1973 during Richard Nixon's watch, just as it had come to Germany in 1883 when the conservatives were in power, during Bismarck's watch. When that failed to happen, its revival in 1993 was almost certain to succeed. We are too close to say why, in fact, it failed—we all have our opinions. But fearing a reform that might leave them out, and faced with declining profits in life insurance and investments, the insurance companies moved quickly to take over anyway. We have entered rapidly into an era of commercialized, for-profit, market-driven medicine, which, we hope, will be short-lived.

If it isn't, academic medical centers, as we know them, will be unrecognizable as medical schools, teaching and research institutions, joined with their teaching hospitals, integral parts of universities, institutions that have worked reasonably well as schools for doctors and discoverers of new knowledge. Now they are trying to figure ways to go along with the crowd; driven by health insurers, they seek to grab on to their share of the health-care market. In this they will both compete with and try to join the teaching hospitals whose concern for patient care and education will run a distant second to their compelling need to hold their market share by cost competing.

Thus we have health-care reform without Congress having considered a bill. Perhaps it was all inevitable (thoroughgoing determinists would say so, of course) because teaching hospitals and academic medical centers had, like government and dinosaurs, grown too big. Unrestrained by the market and common sense, that was sure to happen. Major hospitals with 60% occupancy, or even less, academic medical centers with more faculty members than students and still growing, and massive administrative hypertrophy in both, if not quite ready to become black holes, are certainly ripe for significant shrinking. The future being unpredictable in a lumpy universe, this all may come sooner than any of the insiders can imagine! We can only hope that they discover soon that they never needed insurance companies in the first place to manage their money and run the show!

To show how quickly this has all come about, the Institute of Medicine about 25 years ago suggested, after an elaborate study, that a medical school with 100 students in each class would need fewer than 100 faculty members, including their academic administrators. Of course, it is not quite that simple, but when medical schools engage full-time faculty to do nothing but clinical work—no teaching or research—and then expect busy practitioners not reimbursed by the school to teach their students, priorities have gone astray. When that happens, stormy change should not be long in coming. And when insurance companies talk of buying doctors and patients, the rumble of distant thunder is unmistakable.

Change can be and often is for the worse; it will be in this case unless we rediscover some defining principles: physicians are not health-care providers, patients are not consumers of health care, medical services are not products, and the work of physicians and other professionals and their hospitals is not the health-care industry. Words have a way of determining the direction of thought's arrow.

ROBERT U. MASSEY, M.D., Professor Emeritus, Division of Humanistic Studies, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington.

REFERENCE

1. Hawkin SW: *A Brief History of Time: From the Big Bang to Black Holes,*. Toronto and New York: Bantam Books: 1988: 143-53.

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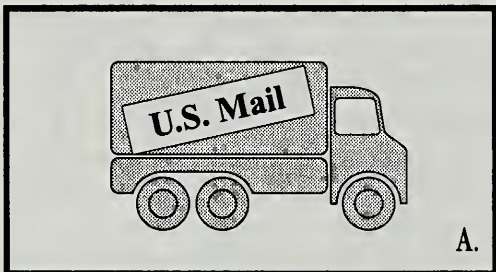
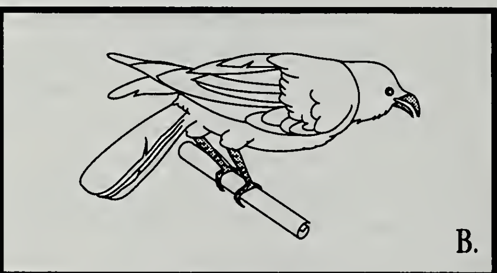


A.



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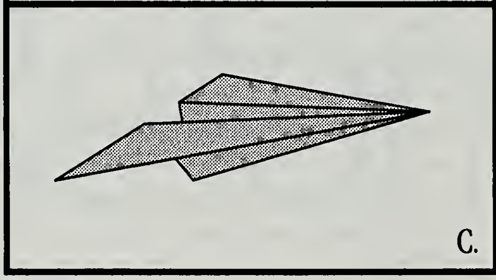

C.

D.

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MEDICAL NEWS CAPSULES

This Month's Reading in Review

TIMOTHY B. NORBECK

At the beginning of 1993, there were 427,995 nonfederal patient-care postresident physicians in the U.S.... Of that number, 31.1% were employees who reported working an estimated 2,170 hours annually in direct patient-care activities.... The remaining 68.9% were self-employed and reported working an estimated average of 2,604 hours annually in direct patient-care activities....If the 68.9% currently self-employed reduced their direct patient care to the average 2,170 hours reported by the physician employees, a total of 127,980,067 annual hours of direct patient care would be lost in the conversion—an equivalent of a loss of 58,977 full-time physicians working at the rate of employee physicians.

AMA Policy Research Perspectives (January 1995)

Membership in private-sector unions in the United States has been declining since 1953.... Currently, it is at 11% of private employment, less than one-third of its historic high of 36%—and even lower than its 12% in 1929.

National Center for Policy Analysis
(November/December 1994)

The U.S. Public Health Service claims that more than 50,000 American adults die each year from diseases that could be prevented by vaccines.... At least 30,000 of those deaths would be prevented if people were diligent about getting immunized against the flu, pneumonia, and hepatitis B.... The group recommends that adult immunization be covered by all health insurance plans.

(13 December 1994 press release)

Older drivers tend to have more accidents per mile than do younger drivers.... A research team at Yale University School of Medicine has devised three simple tests to predict whether a person age 72 or older can drive safely, Those who walk less than one block per day, have a foot problem such as deformed toes, or have trouble copying designs in simple mental tests are much more likely to have car accidents than are other people their age.

U.S. News & World Report (19 December 1994)

The number of Medicaid beneficiaries enrolled in managed-care plans increased from 4.8 million to 7.8 million, or 63%, during the past year.

Department of Health and Human Services' release
(9 December 1994)

Medicaid spending grew from $112.6 billion in 1992 to $124.9 billion in 1993—an 11% increase in spending, compared with a 26.7% increase in 1991 and a 28.8% increase in 1992.

Henry J. Kaiser Family Foundation report
(December 1994)

The Bipartisan Commission on Entitlements and Tax Reform Co-Chairs, Senators Bob Kerrey (D-NE) and John Danforth (R-MO), have suggested "cutting congressmen's pensions by 40%"....According to the *New York Times*, the commission includes five people who are retiring from Congress, "so this proposal may encounter opposition."

New York Times (19 December 1994)

Some 23% of 1994 medical school graduates planned to be family physicians, compared to 19% in 1993 and 15% in 1992.

USA Today (21 December 1994)

Do you think a ... is or is not a medical doctor?

	Is	Is Not	Not Sure
Pediatrician	96%	2%	2%
Orthopedist	82	14	4
Dermatologist	79	17	4
Ophthalmologist	70	21	9
Psychiatrist	63	35	2

Louis Harris and Associates Poll (8-10 December 1994)

Osteopath	47	34	19
Podiatrist	63	28	10
Optometrist	49	45	5
Ph.D.	41	55	5
Psychologist	35	62	3
Chiropractor	30	67	2

Only in America: In 1991, James Campbell, a chemist at Virginia Tech, was caught manufacturing methamphetamines at a university laboratory, yet was acquitted on the legal defense that he had only tried it after watching the TV program "48 Hours" and hearing correspondent Dan Rather explain the process for making speed.

The Great American Bathroom Book, III (1994)

TIMOTHY B. NORBECK, Executive Director, Connecticut State Medical Society.

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Letters to the Editor

Letters to the Editor are considered for publication (subject to editing and abridgement), provided that the are submitted in duplicate, signed by all authors, typewritten in double spacing, and do not exceed 1-1/2 pages of text (excluding references). They should not duplicate similar material being submitted or published elsewhere. Letters referring to a recent Journal article should be received within six weeks of the article's publication.

Face the Realities

To the Editor: Timothy Norbeck's insightful address to the CSMS House of Delegates [*Conn Med*, Dec. 1994] accurately portrays the dilemma we physicians face: be abused at the hands of the government or be abused at the hands of the insurance conglomerates. Having unsuccessfully sought the Republican nomination for the U.S. Senate and having personally spoken to thousands of voters, I believe that we physicians should support single-payer catastrophic coverage for all Americans.

Permit me to acquaint my fellow physicians with some brutal political realities:

1. Nobody feels sorry for physicians. While most of us feel that we have worked hard to deserve our income, the average voter has as much sympathy for us as we have for striking shortstops batting .205 while making $1.2 million a year. The AMA is viewed by the average voter as an organization dedicated to keeping us in BMWs.

2. There is a health-care problem. Middle-class families live in constant fear of losing their life savings to an illness as corporations continue to lay off workers and insurance companies dedicate themselves to insuring the healthy and avoiding the sick. Bill Clinton's failure to pass health-care reform does not change these blunt realities.

3. By and large, the politicians who raise the most money win elections. We physicians cannot compete with corporations, insurance conglomerates, and trial lawyers in the money race.

We must instead ally ourselves with middle-class America.

Single-payer catastropic coverage was actually proposed by Senator Robert Taft in the early 1950s. Lest you think the senator was a raving socialist, he actually was a conservative Republican. In fact, he accused General Eisenhower of being a Communist at the 1952 Republican convention.

The plan I proposed during my campaign would extend Medicare to cover all Americans for annual medical bills that exceed $15,000 a year. The plan would be financed by raising the Medicare tax. Families could then purchase insurance to cover the first $15,000 or else use medical IRAs. I found this plan to be acceptable to the vast majority of voters, probably in the 75% to 85% range. The media also viewed this plan favorably.

If we physicians want to preserve our autonomy and give our patients the best care possible, we must be viewed by the general public as their compassionate advocates, not as another special interest group dedicated to preserving our income. Otherwise, we should be prepared for insurance company executives and stock market speculators to profit from the fruits of our labor.

Joseph F. Bentivegna, M.D.

Rocky Hill

Sleep Disorders

To the Editor: I have, in recent months, read numerous articles and heard medical lectures on disorders of sleep. These usually spend much time on the more esoteric problems such as narcolepsy, sleep apnoea, etc., and a brief mention of insomnia.

Insomnia of various kinds is the most common sleep disorder and the most difficult to treat.

The articles and lectures never suggest any significant therapy and the same applies to sleep clinics.

The reason for this is simply that no significant or satisfactory therapy is known and used by orthodox medicine.

From personal experience, plus that of a hand full of friends and patients, I recommend to you all that you recommend and, if you need it, use acupuncture. It works!

D. Norman Markley, M.D.

West Hartford

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From the Executive Director's Office

COUNCIL MEETING

Wednesday, 11 January 1995

Attendance

In addition to the Chairman, Dr. Joseph Czarsty, were Drs. Beck, Bigos, Bobruff, Brooks, Deren, Freedman, Geary, Herzog, Hollister, Kamens, Katz, McDonnell, Montegut, Parke, Redmond, Scarpa, Van Nostrand, Watson, Zanker.

Also present were: Mr. Norbeck, Ms. Lindquist, Mr. Brunell, Ms. Schaffman, Ms. Norbeck (all CSMS staff), Mr. Mark Schuman, (MCMA), Ms. Amy Snider, (NLCMA), Ms. Harney, (NHCMA), Mr. Rick Fiorentino, (HCMA), Mr. Mark Thompson (FCMA) James Orphanos, M.D.,Chairman, CSMS Legislative Committee, Vincent Catrini, M.D. and Doug Hayward, (MDHP).

Absent were: Drs. Ahamed, Eslami, Franklin, Keating, Lesnik, Meridy. Mushlin, Petro, Sadowski, Schwartz, Sosa, Tesoro, Timmerman, Wetstone, Wolfson.

Video of AMA's President's Speech at AMA Interim Meeting

Prior to the start of the meeting, a videotape of Dr. Robert McAfee's speech at the AMA interim meeting was viewed.

Reports of Related Organizations

CPRO: Dr. Kamens reported that CPRO recently made a presentation to the Central and Regional Office of the Health Care Financing Administration on its involvement in the past 13 months in cooperative projects in the Health Care Quality Improvement Program (HCQIP). HCQIP has been directed at building a community of those who are committed to improving quality in our state, and it involves practitioners, the delivery systems within the state, and some of the patients in the state in expanding relationships. There have been numerous linkages forged over this period of time and the current partners in this project include 100% of the hospitals on the CCP (Cooperative Cardiovascular Project) and the great majority of hospitals on all other projects. There has been support from both the State Medical Society and the specialty societies together with both universities. In addition, numerous health agencies of the State of Connecticut and representatives of the elderly have also been involved in these projects. The principal topics have been those associated with Medicare mortality and patterns of care. They include such topics as the decubitus ulcer, congestive heart failure, AMI, mammography, diabetes mellitus, and the utilization of such modalities as blood cell transfusions and mammography.

He further reported that improvement in quality and access to care has been sought through cooperative improvement projects which identify and confirm patterns of care and develop action plans designed to achieve improvement. A great deal has been achieved by working with the HCQIP (Health Care Quality Improvement Program) liaison committees and with beneficiaries of care in such projects as the mammography project where on-site feedback visits and the use of volunteers within the beneficiary communities are being explored as ways in which promotion of informed health-care choices can be made. Underutilization of mammography poses a particularly challenging problem and a specific project to enhance utilization of this service has been initiated.

He stated that an infrastructure to address these issues in systematic fashion has also now emerged and as a result CPRO has been involved in national projects to expand the kinds of activities that have been initiated in Connecticut. An additional project in the Medicaid program dealing with HIV readmission is now being performed. Prior to the recent flu season, in a cooperative effort with the State Medical Society, CPRO was able to produce radio spots to encourage the use of flu vaccine and increase its utilization in the State of Connecticut.

These activities have caught the interest of both the Regional and Central Office of the Health Care Financing Administration, and next month CPRO will be making two presentations at a meeting in Baltimore relative to its present activities.

M.D. Health Plan: Dr. Catrini and Mr. Hayward joined the Council to give an update on current activities of M.D. Health Plan. Dr. Catrini reported that the conditions of the Health Systems International (HSI) and M.D. Health Plan merger are as originally reported with an option added. It will continue to be a stock deal with the same financial values for members; however, there will be an option now to make this a cash instead of a stock transaction. Dr. Catrini also commented on the newspaper articles concerning the sale of HSI and reported that whatever happened, it would not affect the current proposal between HSI and M.D. Health Plan. It was reported that the earliest the transaction would be completed between March and June.

Office of Health Care Access (OHCA): Dr. Howard Meridy, a member of the Health Care Review Board, submitted a letter informing CSMS that he was leaving Connecticut and accepting a position as Vice President at the St. Johns Regional Medical Center in Joplin, Missouri. He, therefore, was resigning as a councilor from Litchfield County and also would be relinquishing his post on the OHCA Board. It was VOTED to send Dr. Meridy a letter thanking him for his many contributions to the delivery of health care in Connecticut and to also present him with an inscribed award expressing appreciation for his services. Efforts are underway to have Dr. Edward Kamens replace Dr. Meridy on the OHCA Board.

Report of the President

Dr. Zanker reported that the past three months have been very busy with daily interaction with members. Also he attended 12 meetings, some of them involved several days, such as the AMA Interim Meeting and the AMA Legislative Conference. He expressed his appreciation for the efforts of Dr. Howard Meridy on behalf of organized medicine and stated that CSMS owes him a debt of gratitude. He reported that on 12 November he hosted in his home the Presidents of the various county medical associations with their spouses. It proved to be a very successful event in getting the county officers to interact with each other. He also reported briefly on his attendance at the AMA meeting and stated that at the present time the AMA has very strong leadership and they are constantly working on behalf of organized medicine. Dr. Zanker discussed some of the issues taken up at the Legislative Conference, ie, Medicaid waivers, ERISA laws, and managed care. He stated that it was important to keep physicians abreast of changes and trends taking place in healthcare delivery. Another item of concern mentioned was the continuity of health-care coverage, and Dr. Zanker stated that CSMS should push for legislation that would permit individuals, who have been covered by health coverage, to be able to continue coverage from one employer to another without having to go through a reapplication process. It was VOTED that the CSMS Committee on Legislation make the issue of portability of health insurance a priority so that people have the opportunity to continue their health insurance in another company without preexisting conditions being a consideration.

Report of the Executive Director

Mr. Norbeck informed the Council that physicians who are on the White House list to replace former surgeon general Joycelyn Elders are: HHS Deputy Assistant Secretary, Susan Blumenthal, who is also the spouse of Edward Markey, representative from Massachusetts; Harlem Hospital Center Director of Surgery, Harold Freeman; American Cancer Society's, John Laszlo; and former representative Roy Rowland from Georgia. Aides have suggested that Ms. Blumenthal is not interested. Also surfacing as a candidate, who is very interested, is Hawaii Health Director, Dr. Jack Lewin. He reported that there is a proposal of House Speaker Newt Gingrich and Representative Tom Bliley of Virginia, to merge the Surgeon General's post with HHS Assistant Secretary for Health, which may have some impact on the decision.

Mr. Norbeck outlined details concerning the Cigna deselection cases involving nine New Britain physicians and nine patients that were thrown out last month by Hartford Superior Court on the basis that ERISA, (Employee Retirement Income Security Act) which protects employee benefit plans from state regulation, preempted all their claims. Both physicians and patients have sued Cigna in two separate actions (Hollis and Napoletano cases), accusing Cigna of unfair trade practices, misrepresentation, breach of contract, and violation of a new law passed in 1994 for qualifying physicians in their networks. He suggested that we file through an amicus brief and join the Hollis and Napoletano appeal. It was voted that CSMS support the appeals and file the amicus briefs. AMA has been contacted and they will consider submitting an amicus brief and will assist our attorney in his submissions. Members of the AMA delegation were requested to communicate with the leadership of the AMA urging the AMA to support the amicus brief on their own.

Report of AMA Delegation

A summary of the AMA interim meeting was distributed with the agenda for the meeting and Dr. Kamens also distributed a comprehensive report which he prepared. Dr. Kamens reported that it was a somber and subdued meeting. He commented on a presentation made by Harry Schwartz, a former member of the editorial staff of the New York Times and a friend of medicine. In Mr. Schwartz's presentation, he stated that the revolution in medicine that he predicted 20 years ago had taken place and the doctors have surrendered. He made it very clear that physicians were becoming irrelevant in the thinking of people who were in the business of handling the business of medicine. Lonnie Bristow, M.D., incoming AMA president stated that we are going to have to deal with the problems facing medicine, physicians would have to be adaptable, and the bottom line has to be protection of the doctor-patient relationship. Other speakers in the forum were also pessimistic about the future practice of medicine. Dr. Kamens commented that there is a world out there that has changed completely, and that world is one which is going to incorporate the practice of medicine and "physicians at risk." Physicians will have to go at risk in terms of financing in whatever they get involved in.

The House considered 190 resolutions and 92 Board and Council reports on topics affecting medical practice and the public health of the American people. Other items covered in the report were "Managed Care and the AMA's Private Sector Initiative," "Health System Reform," "Employer Control of Health Insurance Choices," "McCarran-Ferguson Act," "State Health System Reform," "Antibiotic Usage of Bacterial Resistance," "Control of *E. Coli* Infection," "Weekly Reader Influence on Children's Attitudes About Smoking," and a great many other issues. (Dr. Kamen's report appears in full elsewhere in this issue of *Connecticut Medicine.*)

Connecticut's Current Plan for Medicaid Managed Care

Wilfred Reguero, M.D., a member of the Legislative Advisory Council for Managed Care, joined the Council to discuss some of the problems being faced by Medicaid's plan to move to managed care. He stated that Connecticut paid out twice the national average in Medicaid payments. It was stated that there are only four components of the Medicaid program that can be impacted upon. They are client eligibility, health benefits, fees, and utilization of the services. It did not appear feasible to make changes or cut back in any of these components without collecting a great deal of data on the various programs covered by Medicaid. The Advisory Committee has pointed out that before a plan for Medicaid Managed Care could be implemented, it was necessary to collect the necessary data, and also there was no plan in place on how this program would be monitored. However, it appeared that the state was going to proceed with the plan to apply for a Medicaid waiver despite the advice of the Advisory Committee. It was VOTED to refer this matter to the Committee on Statewide Medical Planning requesting them to report back, in no more than 90 days, with a recommendation on a policy statement for the Connecticut State Medical Society on Managed Medicaid.

Credentialing Project

Dr. Kamens reported that the AMA is strongly encouraging state medical associations to get into services that would be beneficial to physicians. One area they are emphasizing is that physicians need help obtaining relief from what is going on with repeated applications, repeated credentialing, etc. by HMOs. Dr. Kamens noted that when he previously mentioned developing a credentialing program, there did not appear to be much interest on the part of the Council. Health Care Directions (HCD) which is a private offshoot of CPRO has been doing utilization review for the private sector. He reported that an infrastructure has been developed with clinical expertise and data gathering and analyzing skills. In speaking to some of the leadership at the AMA meeting about this activity, the question arose as to the possibility of carrying this out with the State Medical Society. Dr. Kamens stated that they have done a great deal of the work and outlined in detail what steps would have to be taken in the establishment of a credentialing program. Following discussion, it was VOTED to explore the possibility of a joint venture on the establishment of a credentialing program. The following Ad Hoc Committee was appointed to study this issue: Chairman, Dr. Roger Beck, Drs. Bigos, Bobruff, Hollister, Kamens, Montegut, Zanker. It was suggested that a formal proposal be brought to the Council at its next meeting.

Guidelines Concerning Independent Medical Evaluation

A request was received from a CSMS member that CSMS provide some guidelines to those physicians performing independent medical evaluations to help define the function of those evaluations and reduce the degree to which the medical profession is being manipulated. It was VOTED to ask the advice of the Workers Compensation Committee concerning this subject and that a letter be directed to Joseph Zeppieri, M.D. who chairs this committee.

Statewide Physician Health Program

Dr. Michael Deren, Chairman of the Search Committee for the Acting Medical Director for the Statewide Physician Health Program, reported that the committee developed a job description, responsibilities, and qualifications for the Medical Director. It was stated that it would be a paid part-time position, and the individual would report to the Executive Director of CSMS who reports to the Council. Ads for the position were placed in *Connecticut Medicine, New England Journal of Medicine,* and various newspapers. A letter announcing the availability of the position was also sent to each county association. Eight applications have been received and several telephone inquiries. The committee reviewed the curriculum vitae's and will be holding personal interviews in the near future.

Physicians for Human Rights

In response to a request from the Physicians for Human Rights organization as to the Society's position on capital punishment, it was VOTED to approve the AMA policy and the AMA Council on Ethical and Judicial's position. It is the AMA policy that a physician, as a member of a profession dedicated to preserving life when there is hope of doing so, should not be a participant in a state execution. Physicians participating in executions, except to certify cause of death, is a serious violation of medical ethics.

Workers' Compensation Protocols

Dr. Brooks reported on a meeting with Mr. Gardner Wright and Commissioner Frankel to discuss the protocols that the Commissioner developed. These protocols were mandated by the legislature. The Commissioner selected a panel of providers who wrote the protocols and then submitted them to CSMS for approval. He informed the Commissioner that CSMS did not want to comment on the detail of the protocols but rather the process under which they were developed. He reported that he suggested that appropriate literature be appended to the various recommendations and when only global subjective reasoning is used that it be clearly indicated. He suggested to the Commissioner that the drafts of the protocols be submitted to the various subspecialties which will be affected. The Council VOTED to contact the specialty societies asking that the protocols referred by the Commissioner be reviewed and at the same time a covering letter be sent indicating what the problems are with the protocols. It was also VOTED to send a letter to the Commissioner that the Connecticut State Medical Society has concern about the protocols because they may be incomplete and not backed by scientific evidence and we have requested the CSMS specialty societies to review them and respond to the Commissioner with copies to CSMS and that a copy of the letter be sent to the Governor and Lieutenant Governor.

Legislation re Construction of Trash-to-Energy Plant in Lisbon

A communication was received from the New London County Medical Association suggesting that CSMS consider proposing legislation that would rescind the permit granted to construct and operate a trash-to-energy plant in Lisbon, Connecticut. The letter stated that until the cities and towns of Connecticut demand the full capacities of the presently operating facilities, no additional incinerators should be constructed. It was noted that the only demonstrable "need" was that of the operators, not the state, who would be importing refuse from out-of-state to operate to capacity. CSMS was requested to support legislation that imposes a moratorium on the granting of permits until a "need" is demonstrated, the public-health concerns are addressed, and the well-being of Connecticut safeguarded. Following discussion that more actual data is required on the issue, it was VOTED to table the motion until the next meeting, that CSMS oppose, for health reasons, the construction of an incinerator in Lisbon.

Nominations for Positions on AMA Councils

A request was received from the AMA requesting nominations for AMA councils and it was VOTED to recommend Joseph Sadowski, M.D., for appointment to the Council on Legislation and to request the support of the New England Delegation.

Committee on Public Affairs

It was VOTED to appoint Dr. Herbert Weisberg, Waterbury, as chairperson of the Committee on Public Affairs to replace Dr. Howard Meridy, who is leaving the state.

Charitable Trust

In accordance with the Trust Agreement of CSMS Charitable Trust, the Council was supplied with a Statement of Assets and Liabilities as of 30 June 1994 and a Statement of Cash Receipts and Disbursements for the year then ended. The report was received as information. Dr. Beck reported that $14,000 has been given to the Connecticut Food Bank and $7,000 to Connecticut Food Share in Hartford.

Dates of Future Council Meetings

Thursday, 2 March 1995
Wednesday, 5 April 1995

Annual Meeting—House of Delegates

May 10 1995

Ramada Inn, Meriden

CSMS Represents You

For more than 200 years,
CSMS has been the statewide center for physician advocacy in Connecticut.

On Your Behalf in 1994 ...

... ***Secured*** physician representation on the State's new office of Health Care Access, Health Care Reform Review Board charged with developing recommendations and cost estimates for health-care reform in Connecticut.

... ***Testified*** on your behalf at numerous public hearings regarding health reform and patient-care issues.

... ***Worked*** with the strong business and insurance lobbies to reach a compromise which provides, at the very least, for disclosure of physician selection criteria on the part of managed-care entities. This compromise has left the door open for organized medicine to revisit "Any Willing Provideder" legislation in the 1995 session.

... ***Facilitate***d the adoption of a fair, statewide medical fee schedule and billing guidelines for the Workers' Compensation Program.

... ***Negotiated*** a system of settling disputed Workers' Compensation claims in existence prior to the establishment of the current Workers' Compensation fee schedule.

... ***Developed*** "A Solution for Health System Reform in Connecticut," a comprehensive solution formulated by physician members of the CSMS Health System Reform Task Force. The "Solution," which emphasizes improving access and managing costs, was presented to the Connecticut Legislature and the public.

... ***Provided*** physician members with relevant clinical information, legislative updates, and practice information through CSMS-produced publications: *Connecticut Medicine*, CSMS ACTION, *Connecticut SportsMed*, and CSMS Legislative Alerts.

... ***Educated*** thousands of Connecticut residents by producing and distributing health-related materials including commonly asked nursing-home questions, living-will guidelines, "Any Willing Provider" legislative, and health-awareness packets.

... ***Sponsored*** the Disabled Workers' Symposium, Sports Medicine Symposium at Central Connecticut State University and Yale University, Geriatrics Seminar, "Health Breakfast on the Hill" for legislators, Connecticut Science Fair Special Awards Program, and the CME Directors Conference.

... ***Offered*** professional liability insurance at discounted rates to physician members through Connecticut Medical Insurance Company (CMIC), the 100% physician-owned carrier. Since its inception, CMIC has saved physicians over $100 million over the past 10 years.

... ***Organized***, funded, and began implementation of the Statewide Physician Health Program, a confidential, effective and responsible approach toward recovery and understanding of issues pertaining to physician impairment.

... ***Performed*** 23 site inspections at Connecticut hospitals for accreditation in 1994.

... ***Responded*** to local and national media in the form of letters to the editors, op-ed pieces, and interviews focusing on political and socioeconomic issues surrounding health care.

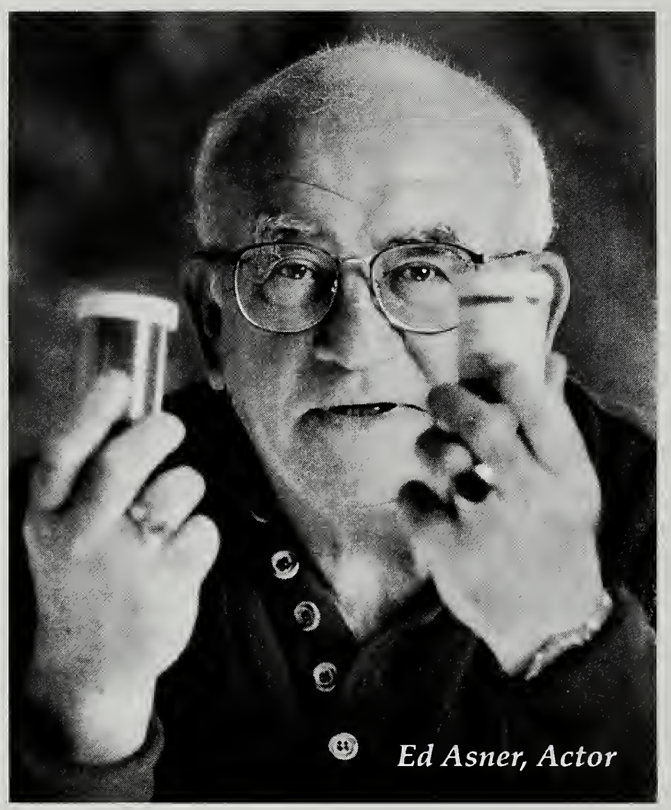
... ***Conducted*** managed-care and legislative seminars for members with local and national experts.

... ***Arranged*** discounts for companies for useful products and services for your practice and your personal use, including the latest benefit, 25% off your restaurant bill at participating restaurants.

... ***Maintained*** the CSMS Placement Service to provide information for physicians seeking associates or practice opportunities in Connecticut.

As we embark on a new year, your medical society stands ready to meet the challenges that you and your patients will face on both the local and national levels.

Attention: Physicians



Ed Asner, Actor

Have your patients' medicines had a check-up?

Many of your patients take several different medicines every day. Separately each one works well. But if they take two or more different medicines in combination without checking with you to be sure they work safely together, they can sometimes be harmful...even dangerous.

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A public service message from the National Council on Patient Information and Education (NCPIE) and the U.S. Administration on Aging

AMA Meeting

3-7 December 1994

EDWARD A. KAMENS, M.D.

THE AMA house of Delegates met in Honolulu 3-7 December 1994. The House considered 190 resolutions and 92 Board and council reports on topics affecting medical practice and the public health of the American people. There were 413 delegates seated, representing every state and virtually every medical specialty society.

The meeting was marked by three "S's." It was particularly **somber**, **subdued,** and **sober**. The tone of the meeting was probably set by one of the first talks presented at the initial forum by Harry Schwartz, a *New York Times* columnist and long–time friend of physicians, who described his view of what he called the proletarianization of American medicine and the American medical revolution which he predicted 20 years ago. This revolution, he feels, has already taken place, and the physicians have already surrendered. The troubling thing to him, as a friend of medicine, is that physicians are becoming irrelevant to the thinking of many people who are former friends and allies of physicians. For example, the pharmaceutical industry has made a determination that the physician is not as important to the sale of its products as the pharmacist. This is reflected in the fall of advertising revenue to medical journals from pharmaceuticals advertising and a rise in the expenditure allocated by these companies to the recruitment of pharmacists in order to increase sales of their products. So in a sense physicians have lost the respect of the pharmaceutical companies. Another example he cited was what occurred when Kaiser–Permanente began to have financial problems. One of the first things they considered was cutting salaries of the physicians.

The problems as Harry Schwartz sees them are that there are too many doctors, too many medical schools, too many specialists, and too many primary-care physicians that can be replaced by cheaper practitioners. The fact is, according to him, that disunity within medicine has contributed a great deal to the problem. Surprisingly, this was the most glowing and uplifting talk of the forum, because he was followed by Henry Caulfield, a cardiologist and CEO of Kaiser–Permenante, who began his talk by saying that no one would like to hear what he had to say, because there had been a health-care revolution, it was over, health care is now big business, and the paradigm had shifted, and managed care has already gone through different phases: first the HMO phase, then the utilization phase, and then the integrated phase of hospital groups, etc. Eventually, he figured that if there is to be any salvation, it must be with the emergence of strong medical groups who go completely at risks and take accountability for care. He also cited the same causes as Harry Schwartz listed for what has occurred, plus the high cost of care, the ensuing competition that got out of control in a context of too many doctors, too many hospitals, too many ORs, x–rays, MRIs, nurses, specialists of every kind, etc.

The imperatives that we all recognized, the increased costs, the psychological demands, the aging of the population, the emergence of AIDS, and substance abuse as big, costly items are all part of the complex, but ultimately the issues were addressed by the commercialization of medicine which is the application of business principles—employers getting together to set rates, performance standards, and penalties. What he saw first was that society had suffered a reduced standard of living, and that doctors were experiencing two major fears and those were: doctors will ultimately lose control of the practice of medicine

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EDWARD A. KAMENS, M.D., Chairman, CSMS AMA Delegation.

and capital will be sucked out of health care in amounts greater than necessary.

He urged physicians to exercise leadership and to become involved by assuming accountability for the health of populations as a whole and not just individual patients. He saw the best hope for solutions in large multispecialty groups with a good deal of financing, taking on risk, and educating the public about behavior that contributes to medical costs. He urged everyone to take on the issue, to change the incentives, and highlight prevention, although he immediately modified that position because he acknowledged that poverty, unemployment, ignorance, and lack of education were contributory causes of poor health, and he couldn't suggest how we physicians could arrive at a solution to all these problems.

Jack Lord represented an AHA perspective on the political integration of medical care with hospitals; again here he made clear that physicians had lost their position and control, and that capitated systems would be taking over, and that illness care should be shifted to wellness care. Quality would become an adjunct to all the efforts, but would be addressed within quality improvement methodology.

One of the things that he saw emerging was the increasing prominence of alternative providers in a system where cost was a major factor and where physicians had lost prominence; he saw the emergence of both open systems and collaborative systems. He was a proponent of integrated systems with assumed risks. He felt physicians would have difficulty with access to capital, but remarked that it was always out there *for a price.*

Lonnie Bristow, who will be the next president of the AMA, had two simple messages. One was that physicians had to develop a basic adaptability to what was going on, and that the bottom line was the protection of the doctor-patient relationship. He urged that physicians emphasize that patient's voice in these matters and physician choice are the key to our future dealings.

There were two attorneys who spoke. Weingard from the Federal Trade Commission, who was not encouraging about issues of antitrust because he felt that many of the letter rulings by the Federal Trade Commission and the IRS did not have the force of law. He continued to emphasize that only a fully integrated practice completely at risk was something that they would find acceptable and not in violation of antitrust.

Ed Hersfield of the AMA legal staff basically conceded that even the election of Republicans did not assure the emergence of antitrust protection. He felt that physicians had to form a coalition with patients and hope that their advocacy would support physicians' goals.

Given the tone of this meeting, it was not surprising that the Board of Trustees of the AMA had already taken action with regard to what they felt was the first need of the association. That was to reconfigure the AMA to deal with the issues that exist and those that will be emerging in the future. In order to do this, avoiding the terms leaner and meaner, they nevertheless directed that the AMA structure be changed under the office of the Executive Director into four groups in order to avoid reduplication, excesses, or unnecessary overlapping. One group, Standards and Education, would deal with certification, ethics, medical schools, etc. One group would deal with health policy advocacy, government, and communications. The third group would deal with the federations and state societies, and the fourth would be dealing with business, science, and the publishing activity of the AMA. Each of these groups would be headed by a vice-president and support staff. It was felt that this approach would be supported by the House of Delegates, and this is what eventually emerged.

At the initial opening session of the House, the customary awards presentation and reports were made. The House broke up into reference committees in order to deal with resolutions. These took fully two days of testimony after which the House met again as a whole, and from that meeting of the House some of the work emerged were as follows:

Reference Committee A was on Constitution and By–laws. Of importance here was the passage of an amendment establishing a "young" physician position on the Board of Trustees. The term "young physician" was defined as one under the age of 40. Numerous clarifying amendments were passed with regard to reference committee. Reference committee size was changed permanently from five to seven members, providing for a broader representation. Numerous resolutions on ethical standards with regard to procurement of organs following cardiac death and supporting specific protocols were passed by the House, including the resolution that the Council on Ethical and Judicial Affairs consider an ethical opinion on the use of anencephalic organ donors. In 1988 the Council's opinion deemed it ethical to remove organs from anencephalics only after they had died, whether the death occurred by cessation of cardiac function or brain function. In 1994, after more than a year of deliberation, the council revised its position, stating that it was acceptable to transplant the organs of anencephalic neonates even before the neonate dies, as long as there was parental consent. The Council presented its rationale, but there was a great deal of discussion from the reference committee in opposition to the change in policy. The Council was therefore asked to reconsider this entire matter.

Another ethical issue was with regard to the acceptance of drug samples and other free pharmaceuticals by physicians. The Council on Ethical and Judicial Affairs had taken a very strong position that it was unethical for a physician ever to obtain personal free medications from drug houses, as this was considered a gift. The House asked the Council to reconsider this policy. Other Council rulings on the ethical nature of receiving limited remuneration from companies for attending specific meetings was also passed with very specific limitations. A recommendation to alter the eugenic policies of the Peoples Republic of China was not adopted. A resolution that identified the problem of sharing of profits within groups of physicians who are not in one corporation but might be part of a capitation system was referred to the Board of Trustees as a potential for being considered fee splitting.

Reference Committee A dealt with health-systems reform by adopting numerous resolutions directed at reevaluating the entire issue, including what had occurred, the people involved, and the secrecy of the process, etc.

Resolutions on employer-controlled health insurance and adoption of language that would make employees the owners of their own health insurance policies was adopted. A resolution that the American Medical Associations assist physicians in dealing with conflicts between state and federal requirements pertaining to the treatment of noncitizens was adopted. Resolutions regarding funding of medical education were also supported. The subject of medical savings accounts was addressed, including AMA support for tax benefits. A basic minimum benefits package compatible with the AMAs definition of that type of account was also adopted.

The definition of primary care and the access to primary care was discussed at this meeting. A resolution was adopted that the AMA work to insure that primary care is not limited by the specialty of the physician, but rather by the expertise of the physician to provide primary-care services. A resolution to distinguish Medicare Part B expenditure growth so that physicians and durable goods would not appear in public releases as a single item, was strongly supported. A resolution requiring health plans to describe their reimbursement policies and explanation of benefits accurately was adopted. Several other payment resolutions (ie, for ethics consultation) were adopted. A resolution requiring the evaluation of demonstration projects for coronary by-pass graft surgery was also adopted.

Reference Committee B dealt with a resolution to repeal the McCarran-Ferguson Act, which provides a specific insurance industry protection from antitrust, was adopted. Numerous resolutions were also approved in support of the patient protection act which the AMA has strongly endorsed. Resolutions on physicians' rights when under investigation for fraud were also supported. Supported resolutions also included ones for training in such areas as child-care workers and hand-gun control. The banning of interstate shipment of titanium equipment, confidentiality of patient records, Medicare coverage for long-term care, support for needle exchange programs, legislation to ban cigarette smoking, resolutions supporting state health-system reform were adopted, as well as resolutions for early-stage embryo research.

Reference Committee C dealt with numerous educational issues including encouraging the training of students and residents in the future directions of socioeconomics in health care. There were resolutions adopted on payments for graduate education and for guidelines on the physician/nurse practitioner integrated practices, which basically endorsed the Council on Medical Service report that had specifically delineated the differences within the practice areas and placed strong emphasis on physician responsibility. One of the significant issues dealt with by the Council on Medical Education was the matter of incriminating questions on license applications: a resolution was adopted specifically requesting that questions deal only with physician competence and with those illnesses or disabilities which might have an effect on the *present* competence of the individual, and avoid delving into past histories. Resolutions pertaining to medical students and their exposure to primary-care and rural health care were also adopted. Modifications on sexual harassment policy were adopted to encompass all such events between educator and medical trainees at any level.

Reference Committee D dealt with many public-health issues, including matters of relationships between medical societies and public-health officers, the adoption and endorsement of pediatric immunizations standards, screening of adolescent injury victims for drugs and alcohol, and encouragement for involvement in programs for lead poisoning reduction and domestic and gang violence were also adopted. The AMA policy against such matters as gangster rap and protection of preschool children from tobacco products, HIV counseling, and education on the hazards of exposure to sun and tanning rays were also adopted as well.

Reference Committee E adopted resolutions working toward increasing the number of minorities registered as potential donors, and issues of sexually offensive advertising. With regard to the therapeutic issues, several resolutions were adopted. One resolution was on bacterial drug resistance and antibiotic drug testing, and the dissemination of information on the emergence of antibiotic-resistant bacteria for the purposes of educating physicians. Education was also encouraged for updating physicians regarding information about combined drug treatment for tuberculosis. A resolution was adopted on the compassionate prescribing of marihuana for people with specific advanced malignancies. Resolutions were adopted encouraging the optimal intake of dietary calcium and the dissemination of information directed at controlling 0157:H7 *E. coli* infection. A resolution with regard to the confidentiality of genetic screening as encompassed in the report of the Council on Ethical and Judicial Affairs will be forthcoming in June to preclude the use of this information in a prejudicial fashion to the public. There was also a report of the Council of Scientific Affairs on female mutilation directed at discouraging the performance of such procedures. One resolution dealt with the attempts to develop a short- and long-term strategy to prevent drug errors. This encouraged efforts towards continuation of the cooperation between physicians, nurses, and pharmacies. It also encouraged broadening of the discussion to include industry, patients, government agencies, and educators. The resolution also addressed encouraging curriculum changes to enhance the error-free administration of medications. As a personal note, what I felt was singularly missing in this resolution and was not addressed completely may provide an opportunity for us in Connecticut to do something concrete in our own state. The issue of drug error is one that lends itself not only to education in the avoidance of errors and to the increasing supervision to preclude error, but also offers an opportunity to go further: the avoidance of error should be addressed on a systems–wide basis and there exists at this time the capacity for systems to be established that would preclude a medication or a treatment being provided without first having gone through very specific barriers to reduce the chance of error. I believe that this is a matter to which we could lend support, and perhaps come up with solutions even more innovative than what the AMA has to offer.

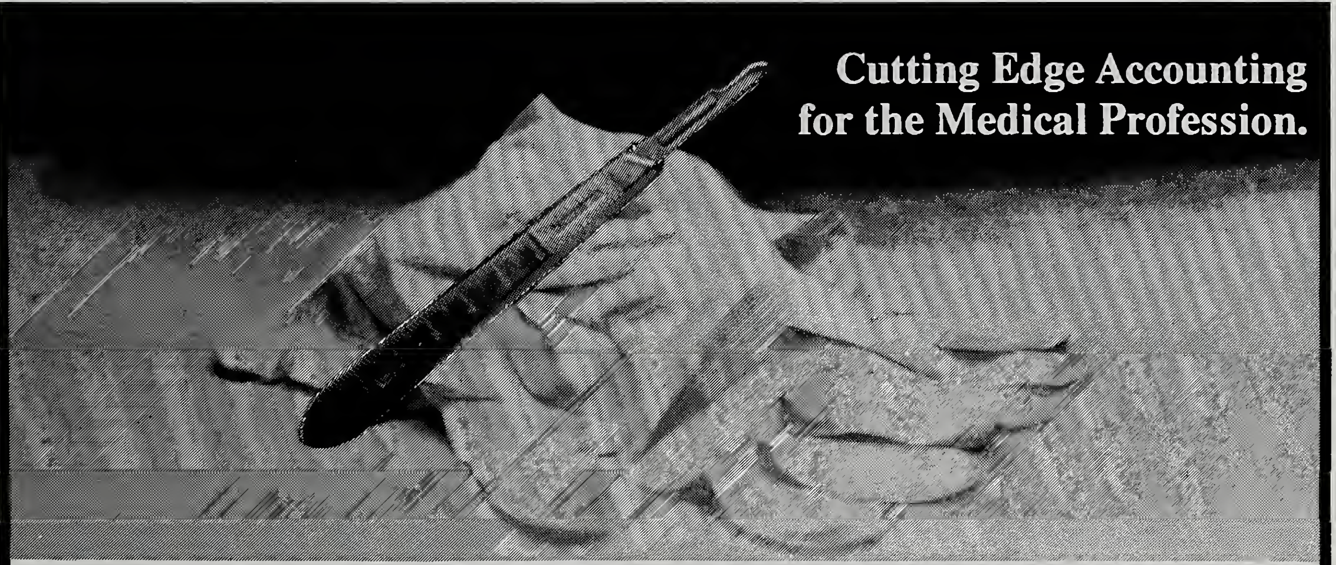
Reference Committee F primarily dealt with fiscal matters, not the least of which was the AMA budget. Because of the restructuring of the AMA and its "reengineering," the consolidated budget is predicted to leave an excess of $2.2 million over budgeted expenses. The AMA is taking advantage of its new budget and allocating its funds to increase its emphasis and activities on science, technology, and medical education. With regard to the World Health Organization, the House of Delegates had requested an investigation into the facts surrounding the nomination of Dr. Hans J. Sewering, president-elect of the World Medical Association. Protests against Dr. Sewering nomination had been made because of the purported activities of Dr. Vilmar and the German Medical Association with respect to Dr. Sewering. It had been alleged that he had been involved in questionable activities during World War II. Following an investigation of Dr. Vilmar, he had withdrawn his nomination and the investigation had been concluded. The House of Delegates urged that the AMA continue its involvement with the World Health Organization. It was felt at this time that it was necessary to develop a closer relationship with this world-wide organization.

The Long Range Planning Council reports were all adopted, including suggestions that the hospital medical staff section be enhanced so that greater focus should be placed on emerging delivery systems. Other resolutions on the encouragement of resident activity in PACs and on AMA fiscal accountability were also adopted. A resolution structuring a legal fund for a Dr. Gerald Einaugler, a New York physician accused of a violation of criminal law in a malpractice case in which he had apparently committed an error, but one that did not represent criminal activity, was also established.

Reference Committee G dealt with many issues of managed care, including incentives beginning to appear in HMOs rewarding physicians limiting treatment of their patients; the AMA adopted a resolution strongly supportive of a position that the AMA amend the Patient Protection Act so that it coincides with Medicare law requiring that no payment be made directly or indirectly under any plan to a physician or physician group to induce them to reduce or limit medically necessary services. Postoperative care under managed care was also addressed in that the House urged that no specific limitations be placed upon the judgment of a surgeon who felt that further surgical follow-up was necessary. There were also resolutions urging access to subspecialists within the managed-care plans, and the issue of board certification as a principal criterion for participation in a health plan was discussed, followed by a resolution urging that multiple criteria rather than simply board certification be used. There was a request and a resolution supporting permission for residents to work within managed care programs under faculty supervision. Physician contracting and patient/physician decision-making were also discussed, and a resolution adopted that the AMA should adopt a policy that would not prevent a physician from providing full information to his patient to assure informed decision-making, regardless of what the incentives might be within the health plan. A resolution dealing with the establishment of a level playing field for physicians' contracts and services, avoiding such things as bundling physician payments with other costs, or profit-dominated exclusive contracts and restrictive formularies to preclude patients from obtaining the best possible care. There were other resolutions dealing with the education of patients with regard to pros and cons of Medicare-HMO participation. Within the context of the overall direction of future care, there was a resolution dealing with the goals of disease prevention, health-risk assessment, health-status improvement, and development of population-based practices. Resolution 705 was strongly supported; that was a resolution that the AMA support state society initiatives to implement a uniform application form and uniform reapplication cycle for the credentialing process. The resolution was endorsed and passed. In addition, resolutions asking for the close monitoring of the National Committee for Quality Assurance and its report cards and its emerging power in certification of HMOs and outpatient facilities be looked at and reported. With regard to practice parameters update—a resolution was passed to readdress this entire issue because of the new emerging data base available from the National Library of Medicine, health services, and the technology assessment text (HSHSTAT) data base. This was referred to the board for further action. There was a resolution supporting physician representation on PHO boards. All of these were grouped together and referred for decision by the Board of Trustees.

Reference Committee H dealt with a summary of use and activities of the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO). A resolution that the AMA representatives to the JCAHO be taken from the AMA membership at large was not supported. The members of the Board named as representatives of the AMA are individuals who have spent a great deal of time in becoming familiar with the elements of JCAHO and of the workings of the JCAHO. It was felt that the best way to go would be for them to continue to represent the AMA. Resolutions were also adopted with regard to coding issues including revision of injury reporting codes and the development of an AMA RBRVS. The decision with regard to RBRVS was that the AMA continue to monitor and to ensure that all the components of the RBRVS were accurate, but that reinventing the RBRVS was not something that the AMA should be involved with at this time. The National Practitioner Data Bank came in for comment and a resolution advising the AMA to implement its policy calling for dissolution of the National Practitioner Data Bank be carried out. This was referred to the Board of Trustees with a request for a report by 1995. Numerous ancillary resolutions addressing similar issues were also passed and received support. Essentially these dealt with refining some of the work component with RBRVS and development of glossaries of definitions that would be utilized for the collection of data and developing a better capacity for adjusting resources based practices expenses.

Finally, the AMA meeting ended essentially as it had begun in a very **somber**, **sober**, rather **sedate**—and at times **unsettling** atmosphere.



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BOOK REVIEW

Vandals at the Gates of Medicine: Historic Perspectives on the Battle over Health Reform

By Miguel A. Faria, Jr., M.D. xviii, 403 pp. illus. Macon, Georgia: Hacienda Publishing. 1994. $41.95. ISBN 0-9641077-0-8.

The author of this ambitious work undertook a daunting task when he set about to draw parallels between historical periods from the European past and our present discontents, especially the troubles of late 20th-century American medicine, "physicians under siege," as he characterizes our present condition.

In 353 pages he takes his readers through the usual textbook events of Western history from primitive times to the end of the 17th century, with the final paragraph devoted to Nostradamus, a 16th-century French physician and fortune-teller. Occasionally he pauses to reflect on implications for understanding our own times. There is more general history than medical history, and all is drawn from secondary sources of variable reliability. For example he states erroneously (p. 182) that "St. Luke was one of the 12 original disciples."

Keeping up with the changes of scene between the reign of the emperor Diocletian and the reign of Lyndon B. Johnson leaves the reader breathless, and at times confused. As a clinical professor of neurosurgery and adjunct professor of medical history at the Mercer University School of Medicine, Dr. Faria himself must many times have struggled under the burden of what seems to be too large a subject.

His political standpoint is clear from the beginning; as one who escaped the prison of Fidel Castro's Marxist state at the age of 13 with his father, he could hardly be anything but fearful of leftist principles that lead too often to socialist tyranny. His historical approach is classical, and it is clear that his education in Western history was classical as well. He covers the familiar ground, opening with Cro-Magnon man at the end of the last Ice Age, and carries his reader, not always chronologically, through the ages of Europe, North Africa, and the Middle East from Imhotep to the Renaissance, and there he stops.

Medical history moves in and out, sometimes seeming to be an afterthought, sometimes the main topic. I can hear him asking his medical students if they have any idea what was going on at the time of Galen in the second century, or if they can imagine European society in those years after the fall of Rome, the Dark Ages, and if they know who the Benedictines were and the School of Salerno.

History does help us to understand the present, if only to remind us of its impermanence. There were indeed bad times in the past when the tyrants were in charge, and there do seem to have been signs, possibly discernible to contemporaries, that disasters were not far off. But sometimes drawing parallels is too simple, and we suspect that we could take other examples and come to quite different conclusions as to the causes of the ups and downs of civilizations.

Curiously he ends his history with Thomas Browne and Nostradamus both of whom he implies were mystics. The gentle physician of Norwich would never have considered himself a mystic:

> As for those wingy mysteries in Divinity, and ayery subtleties in Religion, which have unhing'd the brains of better heads, they never stretched the *pia mater* of mine.[1] ...

Quite apart from his Augustan prose, Thomas Browne has much to teach us about humanism and medicine. But Nostradamus seems strangely out of place in a medical history in the company of others such as Vesalius, Leeuwenhoek, Fabricius, Harvey, and Browne.

There follows the Epilogue, an admonition to today's physicians. I was pleased to find that he quoted our own Timothy Norbeck at some length on the self-destructive, self-indulgent behavior of many Americans who then expect modern medicine to keep them healthy and alive as long as possible. Dr. Faria then urges physicians to "participate in regional health care discussions....set aside time to educate their patients about the serious problems brought upon the health care system by the glut of attorney-litigators....and explain to their patients the benefits of preventive medicine...."

All of this excellent advice, but the reader may be left wondering whether there is really a close connection between understanding history "from Imhotep to Nostradamus" and dealing with the recurrent crisis in medicine and the current events in the Republic? Whether or not, the author has given us a fairly easy-to-read survey course in Western Civ with passing references to medical events along the way, and rest stops for editorial comment.

REFERENCE

1. Browne T: *Religio Medici,* i.9.

Robert U. Massey, M.D.

IN MEMORIAM

COHART, EDWARD M., Columbia University College of Physicians and Surgeons, 1933. Dr. Cohart began his medical career in New York City where he also served as a part-time public-health physician in the New York City Health Department. He was later appointed professor of public health at the School of Medicine at Columbia University and was appointed C.E.A. Winslow Professor of Public Health in 1960. He chaired the department from 1966 to 1968. Dr. Cohart spent 30 years teaching and conducting research at Yale. He frequently served as a consultant to federal, state, local, and voluntary health agencies on public-health issues. Dr. Cohart was a member of the New Haven County Medical Association, the Connecticut State Medical Society, where he served on the Committee on Public Health from 1968 to 1971, and the American Medical Association. Dr. Cohart died 17 November 1994 at the age of 84.

GENTILE, ANGELO L., Boston University School of Medicine, 1929. Dr. Gentile, a surgeon, maintained a private practice in New Haven from 1930 to 1983 and was an attending physician at St. Raphael's Hospital for 50 years. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Gentile died 14 December 1994 at the age of 91.

GREENWALD, JR., WILLARD F., John Hopkins University School of Medicine, 1950. Dr. Greenwald maintained a private practice from 1958 to 1971 and was a founding partner of New Haven Orthopedic Surgeons in 1971 where he worked to the present. He was assistant professor-orthopedic surgery, Yale School of Medicine, and attending orthopedic surgeon at both Yale-New Haven and St. Raphael's hospitals. Dr. Greenwald was a member of the New Haven County Medical Association and the Connecticut State Medical Society. Dr. Greenwald died 10 January 1995 at the age of 68.

LIVINGSTON, WILLIAM T., University of Pennsylvania School of Medicine, 1943. Dr. Livingston was a New Britain surgeon since 1946 who also served as president of Grove Hill Clinic, and Chief of Surgery, Chief of Staff and Vice President of Medical Affairs at New Britain General Hospital. He was a member of the American College of Surgeons and the New England Surgical Society. Dr. Livingston was a member of the Hartford County Medical Association, the Connecticut State Medical Society where he served on the Committee on Hospitals from 1979 to 1983, and the American Medical Association. Dr. Livingston died 6 December 1994 at the age of 76.

NICHOLS, EDWARD, Yale University School of Medicine, 1938. Dr. Nichols practiced internal medicine in Hartford for more than 40 years and was affiliated with Hartford Hospital. He was a member of the Hartford County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Nichols died 30 November 1994 at the age of 83.

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CSMS PHYSICIAN PLACEMENT SERVICE

The Society maintains the Physician Placement Service as a *free* service to the medical profession, hospitals, and communities in Connecticut.

***Opportunities* should be typed, double-spaced copy on letterhead, and submitted to CSMS, Physician Placement Service, 160 St. Ronan Street, New Haven, CT 06511 (203) 865-0587 or fax to (203) 865-4997. These will be published as space permits and will be distributed to physicians making inquiries of such *opportunities*.**

***Physicians wishing to locate* in Connecticut may call the office requesting opportunities in their specialty. Also, candidates are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.**

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

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DNA Ploidy in Testicular Germ Cell Tumors: Can an Atypical Seminoma Be Identified?

MARY F. LACHMAN, M.D., ANDREW RICCI JR, M.D.,
AND CATHERINE KOSCIOL, B.S.

ABSTRACT—Recent immunohistochemical and DNA ploidy analyses indicate that seminoma serves as a precursor to nonseminomatous germ cell tumors. It is believed that tumor progression from classical seminoma to nonseminoma is accompanied by inactivation and deletion of genetic material, and that these deletions are reflected in DNA ploidy.

Twenty-three primary testicular germ cell tumors were studied by DNA flow cytometry to investigate whether a proposed histologic intermediate "atypical seminoma" (AS) could be separated from classical seminoma by ploidy analysis. The mean DNA indices (DI) for classical seminoma (N=16), atypical seminoma (N=5), and nonseminoma (N=2; both embryonal carcinoma) were 1.53, 1.34, and 1.35, respectively. When a single "outlier" case of atypical seminoma was removed from consideration the mean DI for the AS rose to 1.45. This data is consistent with the intepretation of atypical seminoma as an intermediate between classical seminoma (CS) and embryonal carcinoma (ES). It suggests that genetic deletions characterizing progression from CS to nonseminoma may, in part, already be extant in atypical seminoma.

Introduction

THE pathogenesis of testicular germ cell tumors is controversial. There are two basic theories: one, a bidirectional theory which suggests that seminoma and nonseminoma both arise from the same primitive precursor[1,2] and two, a continuum theory where the seminoma is a precursor of other germ cell tumors.[3-7] The former theory of two distinct pathways has appeal since it can be explained simply and it has received support from murine experimental data.[8] However, recent immunohistochemical,[6] flow cytometric,[5,9] and cytogenetic data[10-12] suggest that seminoma may not be terminally differentiated but rather may consist of multipotential cells capable of progression to other germ cell types. Using DNA flow cytometry Oosterhuis demonstrated that progression of seminoma to nonseminoma is accompanied by a decrease in the DNA index.[5] Atypical seminoma is a histologic intermediate between classical seminoma and embryonal carcinoma. In theory such a germ cell tumor with seminomatous architecture and embryonal cytology might also be expected to have an intermediate DNA index. Using previously established histopathologic criteria for atypical seminoma,[13-14] we investigated this hypothesis using flow cytometric DNA ploidy analysis for 25 (24 primary and one metastatic) testicular germ cell tumors including five cases of atypical seminoma and discuss the relevance of these findings to the understanding of this neoplastic process.

Material and Methods

Patient Selection.—The clinical and pathological features of 45 patients who were diagnosed with testicular germ cell tumors (TGCT) between 1975 and 1985 at

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Hartford Hospital were reviewed and the histologic criteria for the diagnosis of atypical seminoma were outlined.[14] Of these, tissue from 12 cases was available for DNA analysis. Blocks from 13 additional cases of TGCT were obtained from the surgical pathology files at Yale University. Table 1 summarizes the patient characteristics of the 25 cases analyzed in this study.

Sample selection and tissue processing for DNA Flow Cytometry.—For DNA analysis, one or more paraffin blocks were selected which contained tumor as well as uninvolved surrounding tissue to be utilized as the internal diploid control. All tissue material was archival. For the nonseminomatous tumors the embryonal carcinoma component was selected for flow cytometric analysis. Multiple 50 micron sections were cut from the paraffin blocks. Each case was deparaffinized and rehydrated through graded alcohols to distilled water. All cases were then held in distilled water at room temperature for seven days. Following the distilled water incubation, the specimens were digested with 0.5% pepsin to produce single cell suspensions. The suspensions were washed and resuspended in the Roswell Park Memorial Institute medium following the enzymatic digestion. The $1X10^6$ cells were then stained using Coulter DNA-Prep reagents (Coulter Corp., Hialeah, FL 33010). The cells were first exposed to Coulter DNA-Prep LPR for 10 seconds to lyse and permeabilize the cells. Then the cells were stained with Coulter DNA-Prep stain which contains RNase and propidium iodide. The cells were incubated in these solutions for 60 minutes and then analyzed on the Coulter Profile II flow cytometer using an argon laser at a wavelength of 488 nm. Ten thousand events were collected for each DNA analysis.

The histograms were analyzed for ploidy status. Any tumor with a single G0/G1 peak was determined to be diploid. Any histogram showing more than one G0/G1 was then analyzed to determine the DNA index of the aneuploid population. The DNA index was determined by dividing the peak channel of the aneuploid G0/G1 population by the peak channel of the diploid G0/G1 population. The resolution of the analysis was graded by the coefficient of variation (CV) of the G0/G1 peak of the diploid population. The CV was calculated by dividing the standard deviation of the diploid G0/G1 peak by the mean.

Results

The patients ranged in age from 21 to 57 years, averaging 37.5, 36.8, and 33.6 for classical seminoma, atypical seminoma, and nonseminoma, respectively. As noted in Table 1 the majority of the tumors were localized at presentation. With regard to the nonseminoma group only the embryonal carcinoma component was considered for flow cytometric analysis. The mean DNA indices for classical seminoma (N=16), atypical seminoma (N=5), and embryonal carcinoma (N=2) were 1.53 (range 1.0-2.3), 1.34 (range 0.9-1.6), and 1.35 (range 1.3-1.4), respectively. When a single outlier case (#22) was removed from consideration the mean DNA index for atypical seminoma rose to 1.45.

Table 1.—Patient Characteristics

Histology	*Patients (N)*	*Stage at Diagnosis*	*Age (years) mean/range*
Seminoma (S)	16	14 confined; 1 tunica alb; vascular	37.5 (21-57)
Atypical seminoma (AS)	5	3 confined; 1 vascular	36.8 (28-47)
Nonseminomas	3	1 met to neck; 3 confined; 1 T3	33.6 (22-36)
Scar; no tumor	1		26

Discussion

The steps involved in the development of testicular germ cell tumors are a matter of controversy. Most pathologists would agree that tumorigenesis proceeds from intratubular germ cell neoplasia (ITGCN). ITGCN often precedes or accompanies seminoma or mixed germ cell tumor. Disagreement arises over whether seminoma represents an endpoint in the terminal differentiation of a neoplastic precursor or whether it occupies an intermediate position on a continuum that if allowed to progress would develop other nonseminomatous germ cell tumor (NSGCT) components.

Clinical data with respect to tumor markers and prognosis appear to favor the former dichotomous separation of seminoma and NSGCT. Histologically however, a considerable percentage of testicular tumors combine both seminomatous and nonseminomatous elements, favoring the alternate theory of sequential tumor progression. Friedman has long been a proponent of this latter theory.[7] Since seminomas cannot be grown *in vivo* and have not as yet been reproduced experimentally, flow cytometry and cytogenetics have been useful in evaluating these tumors.

A progressive decrease in DNA index from seminoma to nonseminoma suggests a loss of chromosomes and may be related to activation of the Kras protooncogene on chromosome 12 during the formation of i(12p).[5] Continued loss or inactivation of chromosomal DNA may then be due to deactivation of tumor suppressor gene function as suggested by Damjanov in his editorial on the subject.[3] The retinoblastoma gene[12] and p53 gene[11] are both tumor suppressor genes, occurring on chromosomes 13 and 17, respectively. These chromosomes are among those which are consistently underrepresented in seminomas.[10]

Table 2.—DNA Ploidy in Testicular Germ Cell Tumors

Case Number	*Age*	*Histology*	*Pathologic Stage (AJCCS)*	*DI (aneuploid %)*	*HPCV (%)*
1	55	S	T1	1.9 (44)	6.0
2	42	S	T1 + tunica albiginea	1.5 (17)	7.6
3	31	S	T1	1.4 (11)	7.2
4	52	S	T1	1.1 (35)	5.7
5	26	S	T4a + vascular	1.0 (66)	4.9
6	28	S	T1	1.5 (21)	7.7
7	42	AS	T1	1.4 (12)	3.4
8	33	AS	T1+ lymphatic	cannot interpret	11.2
9	28	AS	T1	1.4 (13)	7.2
10	36	EC	T3	1.4 (10)	4.2
11	33	EC*+MT	T1	1.3 (14)	6.8
12	22	EC	T0 (metastasis to neck)	cannot interpret	21.8
13	26	scar; no tumor, normal testis		0.5 (31)	6.1
14 Y1	37	S	T1	2.3 (31)	2.6
15 Y2	36	S	T1	1.5 (25)	2.7
16 Y3	25	S	T1	1.6 (15)	2.4
17 Y4	38	S	T1	1.4**(11-16)	3.0
18 Y5	31	S	T1	1.8 (21)	2.9
19 Y6	21	S	T1	1.5 (29)	2.8
20 Y7	57	S	T1	1.5 (10)	2.1
21 Y8	35	S	T1	1.5 (49)	3.9
22 Y9	47.	AS	T1	0.9 (38)	2.9
23 Y10	29	S	T1	1.5 (13)	1.8
24 Y11	34	AS*+ EC+YST	T1	1.4 (20)	2.4
25 Y12	27	AS*	T1	1.6 (2)	1.8
26 Y13	29	S	T1	1.6 (49)	3.6

Key: S=seminoma; AS = Atypical seminoma; EC = embryonal carcinoma; MT = mature teratoma; IT = immature teratoma; YST = yolk sac tumor; *flowed component; ** multiploid average

If a continuum exists between seminoma and nonseminoma and a histologically recognizable intermediate can be identified, ie, atypical seminoma,[4] then it is also feasible that the DNA index of the atypical seminoma might be intermediate between the DNA indices of seminoma and nonseminoma. Oosterhuis reported a median DNA index of 1.66 for seminomas and 1.43 for nonseminomas.[5] El-Naggar and coworkers also reported flow cytometric DNA ploidy results for a series of testicular germ cell tumors.[17] The mean DI of ITGCN *in situ* was 1.70, pure seminomas had a mean DI of 1.82, and nonseminomas showed a mean DI of 1.46.

In our study, the DI was 1.54 for classical seminomas and 1.35 for nonseminomas. These results corroborate the results of both Oosterhuis[5] and El-Naggar.[17] Similar to the data reported by Oosterhuis,[5] we also found that the patients with nonseminomas were younger on average than those with seminoma.

The clinical relevance of atypical seminoma as an intermediate point between classical seminoma and embryonal carcinoma is still somewhat controversial, and established histopathologic criteria for such a tumor are elusive. Nevertheless there are some seminomas (accounting for approximately 5% of cases,) which behave poorly.[4] The incidence of AS has been described as approximately 10% by those authors who believe in the entity.[18-20]

Several attempts to define histologic criteria for AS have been made. Mostofi suggested the use of mitotic rate (an average of three mitoses per high power field) as the best criterion for the diagnosis of AS.[18] Subsequently, others found that up to 86% of classical seminomas have a high mitotic rate,[19] clearly a percentage at odds with the small number of seminomas which behave aggressively. Reuter suggests other features to distinguish AS from classical seminoma, ie, nuclear pleomorphism, nuclear overlap, decrease or loss of lymphocytic infiltrate, and individual cell necrosis.[13] Additional histological characteristics of AS identified in a previous study from our laboratories include vesicular nuclei and syncytial amphiphilic rather than clear or granular cytoplasm.[14]

In the present study atypical seminoma had a mean DNA index similar to embryonal carcinoma (1.34 for AS and 1.35 for EC). Even when the single "outlier" case (#22) was removed from consideration the DNA index for AS was lower than that of classical seminoma (1.45 for AS and 1.53 for CS). These data are consistent with the interpretation of atypical seminoma as an intermediate between classical seminoma and embryonal carcinoma. They suggest that the genetic deletions that characterized progression from CS to EC may, in part, already be present in lesions histologically recognizable as atypical seminoma. It remains to be demonstrated however if men with histological atypical seminoma and intermediate DNA index are at a substantially increased risk.

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Mortality Experience, 30-Days and 365-Days After Admission, for the 20 Most Frequent DRG Groups Among Medicare Inpatients Aged 65 or Older in Connecticut Hospitals, Fiscal Years 1991, 1992, and 1993

JOHN HENNEN, PH.D., HARLAN M. KRUMHOLZ, M.D.,
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ABSTRACT—This report presents mortality rates following inpatient admissions for the 20 most frequent DRG categories among Medicare inpatients aged ≥ 65 years at Connecticut acute-care hospitals during the three-year period from fiscal year 1991 to fiscal year1993. We provide frequency distributions of the 30-day and 365-day mortality rates among these 20 DRG categories. Among the 199,680 discharges of elderly Medicare beneficiaries within the 20 most frequent DRG categories in the three-year study period, the crude 30-day mortality rate was 9.51%; the crude 365-day mortality rate was 28.40%. By gender, the crude 30-day mortality rate for women was 8.78%; the corresponding rate for men was 10.48%. This gender mortality differential occurred despite a significant age differential; on average, the females were 2.5 years older than the males. By age group, the crude mortality rates were: age 65-74 years, 6.66%; age 75-84 years, 9.80%; age ≥ 85 years, 15.25%. The crude mortality rates for the DRG categories were found to be stable over the three-year study period.

Introduction

In a previous report, the most frequent reasons for inpatient admission among Medicare patients at Connecticut hospitals were documented.[1] This report summarizes 30-day and 365-day postadmission mortality rates among these 20 most frequent DRGs. This was done for Medicare patients aged ≥ 65 years in Connecticut hospitals in the three-year period fiscal year 1991 to fiscal year 1993 (10/1/90 - 9/30/93).

Increasingly, patient outcomes are being determined as part of quality-of-care assessments. Patient mortality is one of the most frequently used outcome events. For mortality data to be useful, especially in the elderly, it is necessary that disease-specific mortality rates be understood in the context of general mortality experience. We have assembled data on mortality rates among elderly Medicare beneficiaries for the 20 most frequent DRG categories in order to provide this basic information for physicians, hospital officials, and other interested persons in our state.

Methods

For this report, we assembled data available on inpatient billing claims (UB-82) forms used for invoicing the Health Care Financing Administration (HCFA) for hospital services provided to Medicare beneficiaries aged 65 years or older at admission, as previously described.[1] Data on discharges from Connecticut hospitals during the three-year period fiscal year 1991 to fiscal year 1993 were assembled for this report. Records with similar DRGs were grouped into closely associated subgroups, with one exception, "cancer," which included all DRGs with the words "neoplasm" or "malignancy" in the DRG name. The 20 most frequent DRG groups formed in this way, listed in Table 1, comprise the data set used for the analyses reported here.

We obtained mortality information from the Medicare beneficiary files, which contain dates of death based on Social Security Administration eligibility files. Linkage

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to discharge records was accomplished via the Health Information Claim (HIC) number, which identifies each Medicare beneficiary and is found in both the beneficiary files and the inpatient claims files. For hospital inpatients during the three-year study period, we record the frequencies of death within 30 days and within 365 days of admission among these 20 DRG groups. We also tabulated 30-day mortality data for subgroups of hospitalized patients defined by age at admission (65-74 years, 75-84 years, ≥ 85 years), gender, and year of admission (fiscal years 1991, 1992, and 1993). For comparison purposes, we obtained 30-day and 365-day survival rates among all Connecticut Medicare beneficiaries (age ≥ 65 years) as of a randomly selected date in each of the three study years.

Results

The number of discharge records and the mortality rates at 30-days and 365-days postadmission in each of the 20 most frequent DRG categories are shown in Table 2. There were 199,680 discharge records in the study data set. There were 121,964 different persons represented in the data set.

As expected, the mortality rates varied widely among the 20 DRG categories. Thirty-day postadmission mortality rates among the DRG categories ranged from 1.3% (DRG 112, percutaneous cardiovascular procedures [PTCA]) to 22.4% (DRG 79-80, respiratory infections and inflammations). One-year postadmission mortality ranged from 3.7% (PTCA) to 41.9% (cancer). Comparison mortality rates for all 483,000 Medicare beneficiaries in Connecticut (age ≥ 65s) were 0.49% at 30 days and 4.80% at 365 days.

The DRG categories with the highest mortality rates, at both 30 days and 365 days, were respiratory infections and inflammations (DRG 079-080) and cancer (numerous DRG codes). For these two categories, 30-day mortality rates were 20% to 22%, while one-year mortality rates were 40% to 42%. Several of the procedure-based DRG categories were found to have low mortality rates; for example, 30-day and 365-day mortality rates for PTCA (DRG 112) were 1.3% and 3.7%, respectively.

As indicated in Table 3, the 30-day death rates for several of the 20 DRG categories differed substantially by

Table 1.—Twenty Most Frequent DRGs, Medicare Admissions to Connecticut Hospitals, Age ≥ 65 Years Fiscal Years 1991, 1992, and 1993

	DRG Code	Description
1.	000	Cancer, all types
2.	014,015	Stroke and TIA
3.	079,080	Respiratory infections and inflammations, with/without complications
4.	088,096,097	Chronic obstructive pulmonary disease, bronchitis and asthma, with/without complications
5.	089,090	Simple pneumonia and pleurisy, with/without complications
6.	106,107	Coronary bypass procedures, with/without cardiac catheterization
7.	112	Percutaneous cardiovascular procedure
8.	121,122,123	Circulatory disorders with acute myocardial infarction (AMI) with cardiac catheterization, with/without complex diagnosis, discharged alive/dead
9.	124,125	Circulatory disorders (except AMI) with cardiac catheterization, with/without complex diagnosis
10.	127	Heart failure and shock
11.	138,139	Cardiac arrhythmia and conduction disorders, with/without complications
12.	140,143	Angina pectoris and chest pain
13.	148,149	Major small and large bowel procedures, with/without complications
14.	174,175	GI hemorrhage, with/without complications
15.	182,183	Esophagitis, gastroenteritis and miscellaneous digestive disorders
16.	209	Major joint and limb reattachment procedures of lower extremity
17.	210,211	Hip and femur procedures except major joint procedures, with/without complications
18.	296,297	Nutritional and miscellaneous metabolic disorders
19.	320,321	Kidney and urinary tract infections, with/without complications
20.	478,479	Other cardiovascular procedures, with/without complications

Table 2.—Total Medicare Discharges, 20 Most Frequent DRG Subgroups, Age ≥ 65 Years, Connecticut Hospitals
Fiscal Years 1991. 1992, and 1993
30/365-Day Mortality Rates.

	DRG Category		Number	Mortality Rates	
				30 days	365 days
1.	127	Heart failure and shock	20,893	11.9	25.7
2.	014,015	Stroke and TIA	16,247	14.3	21.6
3.	140,143	Angina pectoris and chest pain	15,853	1.9	5.6
4.	000	Cancer, all types	15,771	20.4	41.9
5.	089,090	Pneumonia, pleurisy	14,637	13.1	24.4
6.	121,122,123	Acute myocardial infarction	11,876	19.5	26.8
7.	209	Major joint and limb procedures	10,427	1.9	4.4
8.	138,139	Cardiac arrhythmias and conduction disorders	10,286	5.2	10.1
9.	088,096,097	COPD, bronchitis, asthma	10,277	5.5	14.3
10.	124,125	Circulatory disorders (except AMI)	9,831	2.0	5.0
11.	182,183	Esophagitis, gastroenteritis	8,390	3.6	10.8
12.	174,175	GI hemorrhage	8,089	7.7	15.4
13.	296,297	Metabolic, nutritional disorders	7,787	17.2	32.6
14.	148,149	Major bowel procedures	6,972	7.0	14.2
15.	210,211	Hip and femur procedures (except joint replacement)	6,621	4.8	12.3
16.	112	Percutaneous cardiovascular procedures	6,026	1.3	3.7
17.	106,107	Coronary bypass procedures	5,652	4.4	6.7
18.	478,479	Other cardiovascular procedures	5,024	4.7	10.9
19.	320,321	Kidney and urinary tract infections	4,850	8.3	18.7
20.	079,080	Respiratory infections and inflammations	4,171	22.4	40.7
		Totals	**199,680**	**9.5**	**28.4**

gender. Notable are three DRG categories for which females had significantly lower 30-day mortality rates than males; these are cancer (males, 25.2%; females, 17%), metabolic disorders (males, 22.8%; females, 14%), and respiratory infections (males, 24.7%; females, 19.4%). These differences are statistically significant ($P < .01$ for each), despite the age differential by gender. On average, across all 20 DRG categories, the women were 2.5 years older than the men.

Table 4 indicates that, as expected, mortality rates were substantially higher among the very old (age ≥ 85 years) than within the two other age groups (65-74 years and 75-84 years). This age differential was especially pronounced in several DRG categories including major joint/limb procedures (DRG 209), gastroenteritis (DRG 182-183), major bowel procedures (DRG 148-149), hip/femur procedures (DRG 210-211), PTCA (DRG 112) and kidney

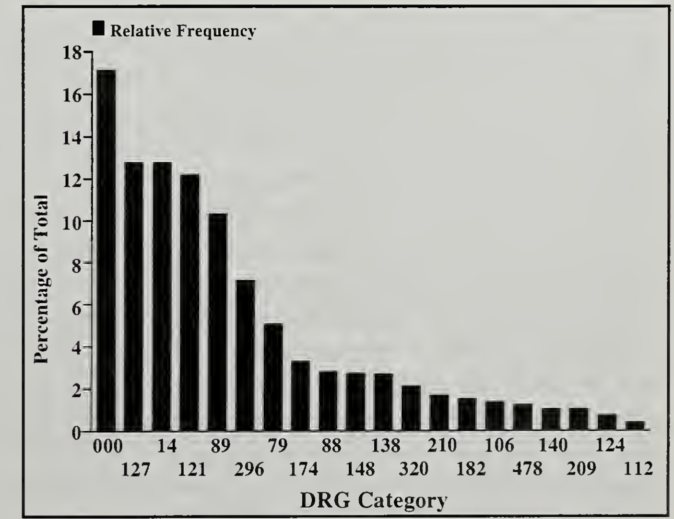

Figure 1.—Relative frequency of death within 30 days of admission, by DRG category, Medicare inpatients aged 65 or older, Connecticut hospitals, fiscal years 1991, 1992, and 1993.

Table 3.—Total Medicare Discharges, 20 Most Frequent DRG Subgroups, By Gender, Age ≥ 65 Years, Connecticut Hospitals. Fiscal Years 1991, 1992, and 1993
30-Day Mortality Rates

	DRG Category		**Males**		**Females**	
			Number	**Percent**	**Number**	**Percent**
1.	127	Heart failure and shock	8,878	13.0	12,014	11.1
2.	014,015	Stroke and TIA	6,791	14.0	9,454	14.4
3.	140,143	Angina pectoris and chest pain	6,331	2.3	9,521	1.6
4.	000	Cancer, all types	6,445	25.2	9,326	17.0*
5.	089,090	Pneumonia, pleurisy	6,919	13.9	7,718	12.4
6.	121,122,123	Acute myocardial infarction	5,807	18.2	6,069	20.8
7.	209	Major joint and limb procedures	3,227	2.6	7,199	1.5
8.	138,139	Cardiac arrhythmias	4,339	6.2	5,947	4.4
9.	088,096,097	COPD, bronchitis, asthma	4,103	6.3	6,173	4.9
10.	124,125	Circulatory disorders	5,349	1.8	4,482	2.1
11.	182,183	Esophagitis, gastroenteritis	2,773	4.8	5,616	3.0
12.	174,175	GI hemorrhage	3,628	8.3	4,461	7.3
13.	296,297	Metabolic disorders	2,804	22.8	4,983	14.0*
14.	148,149	Major bowel procedures	2,907	6.5	4,064	7.5
15.	210,211	Hip and femur procedures	1,365	7.2	5,255	4.1
16.	112	Percutaneous cardiovascular procedures	3,579	1.3	2,446	1.4
17.	106,107	Coronary bypass procedures	3,741	4.0	1,911	5.1
18.	478,479	Other cardiovascular procedures	2,541	4.3	2,482	5.1
19.	320,321	Kidney and urinary tract infections	1,833	7.6	3,017	8.7
20.	079,080	Respiratory infections	2,314	24.7	1,857	19.4*
		Totals	**85,674**	**10.5**	**113,995**	**8.9**

*Statistically significant gender difference (*P* < .01).

infections (DRG 320-321). For these DRG categories, the mortality ratio of age 65-74 to age ≥ 85 exceeds three. Of interest, for one of the 20 DRG categories, metabolic disease (DRG 296-297), there was only a small mortality rate differential among the three age groups.

Table 5 displays the total number of deceased Medicare beneficiaries within discharges among the 20 DRG groups. In order to avoid multiply counting beneficiaries with multiple admissions, only the latest admission within the three-year study period was used for this analysis. Table 5 indicates that estimated mortality is greatest for the cancer category, with about 17% of all deaths within the 20 DRG categories. Next in order are three cardiovascular DRGs, congestive heart failure, stroke/TIA, and acute myocardial infarction. Following these DRGs, fifth in order, is pneumonia. These five DRG categories account for over 65% of all deaths (among the 20 most frequent DRGs) within 30 days of admission. The three cardiovascular related DRGs account for about 38% of these deaths. Figure 1 shows the relative frequency of 30 day deaths, by DRG category, in order by frequency.

The discharge record counts and the numbers of deaths within 30 days of admission for the 20 DRG categories for the three fiscal years separately were as follows:

Fiscal Year	Number of Discharges	Number of Deaths Within 30 Days of Admission	Rate per 100 Discharges
1991	63,913	6,134	9.60
1992	67,664	6,420	9.49
1993	68,103	6,442	9.46
All	199,680	18,996	9.51

None of the 20 DRG categories had year-to-year variation in total 30 day deaths exceeding 2%.

Discussion

Postadmission mortality rates were found to vary widely among the various DRG categories, with 30-day mortality rates ranging from 1.3% (DRG 112, PTCA) to 22.4% (DRG 79-80, respiratory infections and inflammations). Mortality risk was found to be strongly concentrated within several major DRG categories, with five DRGs accounting for about 65% of the deaths occurring within 30 days of admission. It is noticeable that three of these five high mortality risk DRG categories are cardiovascular-related DRGs. These three DRG categories are DRG 127 (congestive heart failure), DRG 14-15 (stroke and TIA), and DRG 121-122-123 (acute myocardial infarction). The three DRG categories by themselves comprise 37.6% of all the 30-day deaths among the 20 most frequent DRGs.There appears to be year-to-year stability in postadmission mortality rates within the study data set. This death-rate stability was found across all 20 DRG categories as well as within each of the 20 DRGs.

As anticipated, postadmission mortality rates were found to be substantially higher among the very old (age ≥ 85 years) than among patients in the 65-74 and 75-84 age ranges. This was held generally among all 20 of the DRG

Table 4.—Mortality Rates, 30 Days Postadmission, 20 Most Frequent DRG Subgroups, By Age Category, Age ≥ 65 Years, Connecticut Hospitals. Fiscal Years 1991, 1992, and 1993

			Age 65-74		Age 75-84		Age ≥85	
DRG Category			**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
1.	127	Heart failure and shock	6,392	9.2	9,243	11.3	5,258	16.1
2.	014,015	Stroke and TIA	5,281	9.8	7,189	14.0	3,777	20
3.	140,143	Angina and chest pain	7,203	1.0	6,553	2.2	2,097	3.4
4.	000	Cancer, all types	8,455	17.7	5,792	22.2	1,524	27.6
5.	089,090	Pneumonia, pleurisy	4,413	8.7	6,144	11.8	4,080	19.6
6.	121,122,123	Acute myocardial infarction	4,735	13.8	5,028	21.2	2,113	28.2
7.	209	Major joint and limb procedures	4,601	0.6	4,284	1.7	1,542	5.9
8.	138,139	Cardiac arrhythmias and conduction disorder	4,218	4.2	4,296	4.9	1,772	7.6
9.	088,096,097	COPD, bronchitis, asthma	4,871	3.9	4,153	6.1	1,253	9.0
10.	124,125	Circulatory disorders	6,171	1.3	3,406	2.8	254	5.5
11.	182,183	Esophagitis and gastroenteritis	3,452	2.1	3,426	3.5	1,512	7.0
12.	174,175	GI hemorrhage	2,676	5.5	3,467	6.9	1,946	12.0
13.	296,297	Metabolic diseases	2,402	16.2	3,171	16.9	2,214	18.5
14.	148,149	Major bowel procedures	3,101	3.8	2,838	7.8	1,033	14.4
15.	210,211	Hip and femur procedures	1,208	2.4	2,667	3.5	2,746	7.0
16.	112	Percutaneous cardiovascular procedures	3,925	0.8	1,924	1.9	177	5.0
17.	106,107	Coronary bypass procedures	3,680	3.3	1,879	6.0	93	7.5
18.	478,479	Other cardiac procedures	2,579	3.5	1,924	4.8	521	9.5
19.	320,321	Kidney infections	1,367	4.5	2,073	8.0	1,410	12.3
20.	079,080	Respiratory disorders	1,061	14.9	1,807	22.3	1,303	28.4
		Totals	**81,791**	**6.7**	**81,264**	**9.8**	**36,625**	**15.2**
All Beneficiaries		30 Days	246,961	0.2	146,201	0.6	49,660	1.6
		365 Days		2.5		5.6		14.0

Table 5.—Estimated 30-Day Postadmission Mortality, 20 Most Frequent DRG Subgroups, Age ≥ 65 Years, Connecticut Hospitals. Fiscal Years 1991, 1992, and 1993

	DRG Category	Number	Number Patients	Number Deaths	Relative Frequency %
1.	000	Cancer, all types	9,495	3,036	17.69
2.	127	Heart failure and Shock	10,311	2,260	12.12
3.	014-015	Stroke and TIA	11,598	2,260	12.74
4.	121-22-23	Acute myocardial infarction	6,200	2,157	12.74
5.	089-090	Pneumonia and pleurisy	9,400	1,825	10.16
6.	296-297	Metabolic, nutritional disorders	5,164	1,271	7.29
7.	079-080	Respiratory infections and inflammations	2,734	899	5.17
8.	174-175	GI hemorrhage	5,515	585	3.07
9.	088-96-97	COPD, bronchitis, asthma	5,165	501	2.30
10.	148-149	Major bowel procedures	5,152	486	2.82
11.	138-139	Cardiac arrhythmias and conduction disorders	6,243	481	2.74
12.	320-321	Kidney and urinary tract infections	3,193	376	2.71
13.	210-211	Hip and femur procedures	4,985	299	1.12
14.	182-183	Esophagitis and gastroenteritis	5,306	270	1.52
15.	106-107	Coronary bypass procedures	4,185	241	1.36
16.	478-479	Other cardiovascular procedures	2,862	218	1.23
17.	140,143	Angina pectoris and chest pain	8,120	185	1.04
18.	209	Major joint and limb procedures	8,188	183	1.03
19.	124-125	Circulatory disorders (except AMI)	4,780	129	0.73
20.	112	Percutaneous cardiovascular procedures	3,368	73	0.41
		Totals	121,964	17,735	14.54

categories, although there were several DRG groups (especially cancer and respiratory diseases) for which the age differential was especially strong.

Of interest are the gender differentials in mortality rates for several of the DRG categories. As noted in Table 4, females were found to have significantly lower 30-day mortality rates in several of the DRG categories including cancer, metabolic disorders, and respiratory infections.

Summary

Rates of mortality following admission of elderly Medicare beneficiaries to Connecticut acute-care hospitals vary substantially among the 20 most frequent DRG groups. Five DRG categories (cancer, congestive heart failure, acute myocardial infarction, stroke, and pneumonia) account for over 65% of all deaths within 30 days of admission for these common conditions. As anticipated, the very old category (age ≥ 85 years) experienced substantially higher postadmission mortality than the other age categories (age 65-74, age 75-84). There were notable gender differences in postadmission mortality among the 20 most frequent DRG categories, with female Medicare beneficiaries having significantly lower 30-day mortality rates in several of the DRG categories, despite being considerably older, on average.

Future reports in this series will provide information about readmission rates, procedure rates, hospital characteristics, and related data based on the present data set.

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Post-traumatic Stress Disorder and the Lost Memory Syndrome

LEO H. BERMAN, M.D.

ABSTRACT—A number of different symptoms may result as the reaction to severe stress. It is unjustified to assume that specific disorders, such as bulimia, multiple personality, borderline personality, etc., are caused by specific early childhood trauma. Fadism is harmful to the patient and the medical profession.

Introduction

THROUGHOUT history it has been recognized that people subjected to great stress, as in war, may have disturbed reactions which persist over time. At the time of the Civil War, a number of different names were given to this condition, such as effort syndrome, and DaCosta's syndrome. During the First World War, the condition was called, "shell shock," "battle fatigue," and "combat neurosis," and then in the Second World War, Abraham Kardiner coined the term physioneurosis.[1] Later it came to be called Gross Stress Reaction,and it was recognized that many natural disasters and other types of severe stress could be as important as a war time experience in the etiology of the illness. The American Psychiatric Association's diagnostic criteria defined the condition as follows:

> The person has experienced an event that is outside the range of usual human experience, and that would be markedly distressing to almost anyone, eg, serious threat to one's life or physical integrity; serious threat to or harm of one's children, spouse, or other close relatives and friends; sudden destruction of one's home or community; or seeing another person who has recently been, or is being, seriously injured or killed as the result of an accident or physical violence.[2]

Diagnostic criteria for this condition included distressful recollections of the trauma, at times reflected in dreams, or experienced as "flashbacks," and distress when experiencing some element of the original trauma. The individual tended to avoid any aspect of the trauma, might show amnesia, or detachment from others, increased arousal, or demonstrate anxiety on exposure to situations which contain elements of the original trauma.

There are specific humoral and somatic changes which take place as a result of such trauma. The condition has become familiar to the public as a result of films and newspaper accounts of war situations. It may also be seen by the physician following a car accident, national disasters such as earthquakes, or airplane accidents. Treatment may be prolonged, but usually anxiolytic drugs, antidepressant medications, behavioral and cognitive therapies do bring about improvement and cure. The victim of a car accident who panics everytime he hears the squeal of brakes, does, after many exposures, usually lose the symptom. Gingerly at first, but more and more comfortably, the individual begins to drive his car, and eventually the memories of the trauma, and the symptoms fade.

However, the concept of the post-traumatic stress disorder has been replaced in recent times by a new form and situation. This is the current trend to accepting that children who have been sexually molested show evidence of the traumatic stress disorder. Therapists believe that many symptoms present in adults can be traced to these early sexual experiences. The hypothesis is that the trauma was so devastating that the child repressed the event, but hidden in her unconscious, it continues to exert its pathogenic force, leading to poor interpersonal relationships, sexual problems, self-mutilation, distrust, prostitution, anorexia, bulimia, and much more. Others have held that

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the trauma was so painful that the child dealt with it by dissociating, creating another personality, "... I am not experiencing this, another part of me is," and thus the formation of a multiple personality. Therapy is then designed to help the patient recover the memories of the assualt, and to confront the perpetrator. The recovery of such memories has resulted not only in the uncovering of the assault, but also memories of satanic cult rituals, past life experiences, or abduction by aliens from outer space who have erased all memory of the experience. These accounts have become part of our popular culture through the talk shows where the victims have come forth to reveal their discovery of the abuse, or through the newspaper accounts of law suits brought by parents against therapists who have helped in the recovery of such memories.

The issue of sexual molestation has been emphasized in other situations. Children have accused day-care workers, baby sitters, etc., of sexual activities in their presence. The charge of sexual abuse frequently arises also at times of marital conflict when one spouse accuses the other of inappropriate behavior. This may be used as justification for a divorce, or in cases of disagreement about parental custody. The children's statements are usually taken at face value, without careful examination of the circumstances of obtaining these statements. It is usually assumed that "children don't lie," but that just is not true,as will be shown later. Secondly, sexual molestation is frequently assumed, based on the psychopathology shown by the patient. As one patient recently told me, her therapist said, "Since you are having sexual problems, you must have been abused. Try to remember when and where." This has led to the "lost memory syndrome," that, while undergoing therapy, the patient suddenly recalls a memory that has been repressed, a memory of sexual molestation. Thirdly, patients with multiple personality disorders, or severe borderline personality disorders are assumed to have had such childhood trauma, whether remembered or not.

Though there is no doubt that the sexual abuse of children is more prevalent than hitherto believed, there is grave doubt of the authenticity of many such events in this present wave of recovered lost memories. The questions that I would like considered are:

1. Why would a young child interpret sexual contact as abuse, since there must be the ability to conceptualize and understand that this behavior is unacceptable and inappropriate?
2. How could people report sexual abuse taking place at six or nine months of age, when the neurological development of the hippocampus is not completed until age three or four, and therefore memory prior to that is not possible?[3]
3. Why is there the assumption that children who were abused repress this trauma, whereas studies of children who have gone through the trauma of earthquakes, or other major disasters, kidnapping, murders, and rapes of their parents, do not show such repression, and they are able to recall the details of the incidents, though with time these memories do fade?
4. If the above three questions suggest that the memories are not true, how did they originate, that is, where do they come from, what is it that is being remembered?

Let us examine this last question first. History is replete with vivid stories of what is now known as mass hysteria. The witch trials of the late Middle Ages, or the experience of the Salem witch hunt in our country in the 17th century attest to the fact that people can report, and believe, many fantastic untruths. Delusions can be contagious.[4] Furthermore we know that the therapist can exert a tremendous power when working with a patient. There is much evidence that the patient will infer the therapist's agenda, and will seek to please him. When the therapist utilizes hypnosis or sodium amytal interviews, there is an assumption that the recovered material must be authentic, but this is absolutely not true. Material so "recovered" has been shown to be subject to many forces that may make these stories invalid and unauthentic.[5]

In interviewing a patient it is absolutely necessary that the questions not be leading or suggestive, but yet it has been demonstrated that many questions put to patients have imbedded in them the preconceived notions of the therapists. In many cases there is not even a pretense of discovering this material, but the patient is told that, on the basis of the symptoms presented, there must have been sexual abuse. If the patient denies this, the response of the therapist has been that this is an evident example of denial. Obviously the more the patient protests, the more the therapist sees this as clear evidence of denial and repression. Unfortunately patients bow to the influence of the therapist, and then proceed to describe fantasied incidents. When the patient is in a group in which others are describing their experiences, a group phenomenon takes place in which she comes to believe that she has had the same experience. Sometimes there is even a competition as to who can give the most lurid and dramatic account.[6]

In interviewing children, recordings have revealed even more damaging incidents of coercion or bribery, eg, "You want to tell the truth, don't you? As soon as you tell us the truth, you can go to the bathroom, or see your mother."[7,8] It has been shown that the mere questioning of a child will implant suggestions that the child will accept, and then will begin to expand and elaborate.[9] Strangely enough, prosecutors of accused day-care workers have accepted the stories of childen who have said the accused killed giraffes and elephants as part of their rituals.[10] Other children have reported the killing and burying of infants; search for their remains have been unsuccessful, yet the accused have been found guilty.[11,12]

Individuals may be very suggestible, and may be led by questions, by others' stories, by coercion, and by the power of transference. There was a report in *The New Yorker* of a respected member of a police force who was accused by his daughter of molesting her when she was a child. His response to the accusation was that he couldn't remember ever harming her that way, but if his daughter said so it must have been true. As she elaborated on the details, expanding her story more and more, he went along with this, even adding details and his own elaborations. He was imprisoned for his crime, but then he began to recant his confession, especially when his daughter began to implicate his wife,and other members of the police force in her accounts of the orgies. A study of the prisoner by a psychologist revealed him to be highly suggestible, easily expanding on any suggestion made to him.[13] In another recent case, an autistic child was being helped to communicate by a "therapist" assisting her in the use of a computer keyboard. In this way the child accused her father of molesting her, but he strongly denied this. It was then learned that the therapist had been molested, and in fact she was really using the child's hand as a planchette on a ouija board.[14]

Unfortunately some therapists have been lulled into a simplistic concept of causation. They have assumed that certain symptom complexes invariably mean that there have been specific causes. If a patient was bulimic, or had a borderline personality disorder, that patient must have been molested. They then search for further proof, and convince the patient in a variety of ways. Thus they lose the opportunity really to investigate their patient, overlooking many other factors that may have been responsible for shaping of the patient's personality or problems. Recently a paper was published showing there was no correlation between bulimia and sexual molestation though this had previously been stated as a fact.[15]

The epidemic of recovered lost memories has resulted in parents being arrested, sued, and punished. But it has also brought about law suits by accused parents who have won judgments against therapists. The mental health profession is now confronted with a new malpratice threat brought about by a father who was awarded a half million dollars in his case against a therapist and psychiatrist who had aided his daughter in "recovering" a memory of her molestation by him.[16] Parents have also organized an association known as The False Memory Syndrome Foundation to serve as a clearing house for information regarding accusations, denials, and scientific investigations of memory and its aberrations. Also the American Medical Association and the American Psychiatric Association have found it necessary to issue policy statements that note the wave of accusations, and warn that out-and-out denial, and over enthusiasm must be tempered. Careful interviewing, search for corroborating evidence, and a broad knowledge of memory research, psychodynamics, and perhaps some commen sense is required.[3]

The above cautionary note does have validity in both camps. It applies to those who sincerely believe that child molestation is prevalent and responsible for many ills and ailments as well as to the skeptics who question the prevalence or the consequences of such acts. A disbeliever can easily overlook the authentic story of a patient, and thus would be missing important information. Actually as one uncovers these stories, one learns that an account of molestation reveals severe dysfunction in the family that is merely highlighted by the particular traumatic event. Thus a patient reported that when she complained to her mother about the sexual advances by her maternal grandfather, the mother said,"Yes I know, he used to do that to me when I was a child, so what can I do?"

It would appear that therapists who report the recovery of lost memories of sexual abuse become specialists, finding many examples to support their view. It is clear that such therapists who are convinced of their findings will be able to influence their patients to fit the pattern. Wakefield and Underwager report a survey which indicated that females comprised three-fourths of therapists who report such cases.[3] Of this group 21% were social workers, 33% were psychologists, and 8% were psychiatrists. Thirty-three percent were counselors. Patients had also been involved with fringe groups such as "prayer, meditation, age regression, neurolinguistic programming, reflexology, channeling, psychodrama, casting out demons, yoga, trance writing, and primal scream therapy."

How then is the responsible therapist to evaluate the authenticity of the stories his patient brings to him? There is no guarantee that error can be avoided. However, the main recommendation is to avoid preconceived notions and to avoid leading and suggestive comments. If the patient has a vague memory, it should be pursued for its significance, and should not be accepted as signifying a forgotten experience. Confirmatory evidence should be sought for, but the therapist is not a criminal investigator. Recollections of bizarre acts are to be viewed with appropriate caution. Knowledge of the personality characteristics of child molestors do help to distinguish beween possible and improbable perpetrators. In other words, the therapist must listen carefully, with as open a mind as possible, and avoid being seduced by the drama of the patient's story.

Here are my answers to the four questions: (1) It is not possible to have memories of events taking place in the early months or years of life. Current research indicates the years three to five as the beginning of memory. (2) Also there is no reason for a very young child to recognize that it is being traumatized by sexual activity unless it is physically injured in the process. (3) Repression is still a questionable and questioned psychic mechanism. An "unconscious" where such material is stored is even murkier. (4) Many therapists have found it easy to think of a one-to-one relationship between specific trauma and specific symptoms. They have also frequently become advocates for the patients that they believe have been injured. They thus abdicate their role as therapist in the process of transformation to advocate. There is a tendency to exaggerate the dramatic aspects of uncovering forgotten incidents of one's life. Thus beyond the diagnoses of bulimia, anorexia nervosa, and self mutilation we have been exposed to the lurid stories of alien abduction, past life experiences, and satanic cults, none of which can be authenticated in any way. It is simply not true that "if you think something happened, it did."

Our profession has need for more rigorous guards against such proliferation of fads. And at the same time we must guard against deafening ourselves to accounts given to us by our patients. We need to practice discernment in hearing and understanding the significance of what is being told to us. Anything less is a disservice to our patients.

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Alternatives to Estrogen for Management of OSTEOPOROSIS

A STATE OF THE ART REVIEW INCLUDING CASE STUDIES

Friday, May 19, 1995

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Important Advances in Clinical Medicine

Anesthesiology

Stephen H. Jackson, M.D., Section Editor

The Council on Scientific Affairs of the California Medical Association presents the following epitomes of progress in anesthesiology. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and clinical importance. The items are presented in simple epitome, and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, researchers, and scholars to stay abreast of progress in medicine, whether in their own field of special interest or another.

The epitomes included here were selected by the Advisory Panel to the Section on Anesthesiology of the California Medical Association, and the summaries were prepared under the direction of Dr. Jackson and the panel.

New Muscle Relaxants

FOUR new muscle relaxants have recently been introduced into clinical practice. These muscle relaxants must be considered in comparison with atracurium besylate and vecuronium bromide, two effective drugs that have an intermediate duration of action, little cardiovascular effect, and a low incidence of postoperative residual weakness. Pipecuronium bromide and doxacurium chloride have a long duration of action, similar to tubocurarine chloride and pancuronium bromide, but without their cardiovascular effects of hypotension and tachycardia, respectively. The cardiovascular safety is excellent, but no better than that of vecuronium. The difficulty of rapidly antagonizing neuromuscular block produced by pipecuronium and doxacurium with consequent persistent postoperative weakness makes them less cost-effective than the intermediate-duration drugs for most surgical situations. Their long duration of action may be of value during long operations, where patients' tracheas will remain intubated postoperatively, or in intensive care units.

Mivacurium chloride is the only short-acting, nondepolarizing muscle relaxant, as it is hydrolyzed by plasma cholinesterase. Intubating doses can stimulate histamine release and, in doses of 0.2 mg per kg or more, may produce hypotension with an incidence similar to that of atracurium. Neuromuscular function following intubating doses begins to recover in 10 to 15 minutes. For procedures longer than 30 minutes, mivacurium is best administered by infusion. A guideline for infusion is to start at a rate of 10 μg per kg per minute as soon as there is evidence of recovery from the initial intubating dose, then titrate the infusion rate to the subsequent neuromuscular response. Neuromuscular recovery is rapid even after an infusion of several hours. Full spontaneous recovery after an infusion takes 15 to 20 minutes, and this time is halved by the administration of neostigmine bromide. Mivacurium's duration is substantially prolonged in patients with diminished plasma cholinesterase activity. Its duration is increased by 50% in patients with renal failure and by a factor of three in those with severe liver disease. Patients homozygous for the atypical cholinesterase enzyme may be paralyzed for several hours. There is no evidence that patient care is enhanced by using mivacurium versus the intermediate-duration drugs vecuronium or atracurium.

The fourth new drug is rocuronium bromide, which has an intermediate duration of action and minimal cardiovascular effects. The pharmacologic advantage of rocuronium is its rapid onset of action. It is the first nondepolarizing muscle relaxant to have an onset that approaches that of succinylcholine chloride. In doses of 0.6 to 0.9 mg per kg,

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it produces paralysis in 60 to 90 seconds. Its onset is about 50% slower than that of succinylcholine, but intubating conditions at 60 to 90 seconds are similar for both drugs; therefore, rocuronium may be useful for rapid-sequence tracheal intubation. This drug is not a complete replacement for succinylcholine, however, as it does not have an ultrashort duration of action. Rocuronium is priced competitively with vecuronium and atracurium.

The clinical roles of rocuronium and mivacurium have been expanded by a recent notice by the United States Food and Drug Administration (FDA) on succinylcholine's potential to produce sudden, unexpected, hyperkalemic cardiac arrest in children with undiagnosed muscular dystrophy. The FDA has determined that "except when used for emergency tracheal intubation or in instances where immediate securing of the airway is necessary, succinylcholine is contraindicated in pediatric patients." This statement is under review, however, and the contraindication will be revised to a warning. Nonetheless, clinicians who have routinely used succinylcholine to facilitate straightforward elective tracheal intubation in children have been advised to find an alternative. If rapid onset is desired, then rocuronium is an acceptable alternative. If brief duration is paramount, then mivacurium may be acceptable. Neither drug can be considered a full replacement for succinylcholine, however.

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Preparing Children for Anesthesia and Surgery

In preparing a child for surgery, an anesthesiologist is faced with the unenviable task of separating a starved and frightened child from anxious parents. The scientific rationale for a lengthy preoperative fast has recently been questioned, and based on new studies, preoperative fasting guidelines have been modified. In addition, newer hypnotic drugs and modes of administration can ease the separation of children from their parents.

Whereas the tradition of a preoperative fast can be traced to 1858, decades of studying the epidemiology and risk factors for perianesthetic aspiration of stomach contents have not determined the proper duration of the fast. It has now been established that the gastric fluid of children (older than one year) who are allowed to drink clear liquids up until two hours before anesthesia is no greater in acidity or volume than that of children who fast overnight. Therefore, ingesting clear liquids up to two hours before an operation does not appear to increase anesthetic risk. Because substantial physiologic benefit from a shortened fast has not yet been demonstrated, children with esophageal or gastric disease, severe neurologic disease, suffering from pain, receiving narcotics, or presenting airway management difficulties would be likely to benefit from more conservative fasting guidelines. In addition, until more data become available, infants younger than one year should fast for three to four hours before a surgical procedure.

The "shot to calm you" is understandably unpopular with children and parents alike. Oral, rectal, or nasal administration of the water-soluble benzodiazepine midazolam hydrochloride is an effective and painless alternative to intramuscular administration. Sedative doses of midazolam when given by these routes range between 0.5 and 1.0 mg per kg. About half of the drug is bioavailable following oral or rectal administration, and the maximal sedative effect will occur within 20 to 30 minutes. Administering the drug nasally increases bioavailability (to about 75%) and provides an even more rapid onset. Because the effects generally dissipate within an hour, recovery from anesthesia is not appreciably prolonged. Oral ketamine hydrochloride, 5 to 10 mg per kg, can be substituted for midazolam; some children may experience unpleasant psychomimetic effects, however, and recovery may be prolonged.

An oral transmucosal form of fentanyl citrate (Oralet) is now available. This consists of a medicated lozenge on a plastic holder. The dose of fentanyl (200 to 400 μg) in each Oralet is substantial, mandating strict adherence to administration and monitoring precautions.

In recent years the preoperative preparation of children for anesthesia and surgery has been reevaluated. Less stringent preoperative fasting guidelines and improvements in preoperative medication techniques have resulted in a less traumatic anesthetic experience without compromising safety.

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Inhaled Nitric Oxide

TREATMENT of pulmonary hypertension with intravenous vasodilators is limited by systemic hypotension (due to the systemic vasodilator effects of all pulmonary vasodilators) and hypoxemia (due to the reversal of hypoxic pulmonary vasoconstriction). Inhaled nitric oxide (NO) now appears to be a major advance in the therapy for pulmonary hypertension.

Vascular endothelium is able to modulate vascular tone by producing substances that dilate the adjacent smooth muscle. In 1987 NO was identified as endothelium-derived relaxing factor. Nitric oxide produced by the endothelium diffuses into vascular smooth muscle, where it activates soluble guanylate cyclase; the subsequent increase in levels of intracellular cyclic guanine monophosphate produces smooth muscle vasodilation. Endothelium-independent nitrovasodilators such as nitroglycerin and sodium nitroprusside also activate guanylate cyclase, but do so by directly releasing NO. They release NO into both the pulmonary and systemic circulations, so that systemic vasodilation accompanies the pulmonary vasodilation. Nitric oxide itself is rapidly inactivated by hemoglobin in blood, so that the effect of inhaled NO may be localized to the lungs. Thus, inhaled NO diffuses from the alveoli to pulmonary vascular muscle and produces pulmonary vasodilation but no systemic effects. Although NO as a component of air pollution has been considered a toxic gas, it has relatively low toxicity; nitrogen oxides such as nitrogen dioxide that form from NO over time are polluting toxic compounds.

In animals, inhaled NO (5 to 80 parts per million) reverses pulmonary hypertension produced by global hypoxia, thromboxane-mimetic infusion, or heparin-protamine interactions. The pulmonary vasodilation is rapid, completely reversible, and selective, with no systemic vasodilation or other adverse effects. Studies in human volunteers have shown that inhaled NO reversed pulmonary hypertension caused by breathing a hypoxic gas mixture (12% oxygen). The effects of inhaled NO occurred within the first minute of inhalation, and there were no systemic effects.

Inhaled NO (40 ppm) has now been shown to be an effective, selective pulmonary vasodilator in the treatment of acute pulmonary hypertension. In contrast, epoprostenol (formerly prostacyclin) produces dose-related reductions in both pulmonary and systemic vascular resistance. The effects of inhaled NO are fully reversible within five minutes of discontinuation and can be reproduced with repeated administration. Inhaled NO has selectively decreased pulmonary arterial pressure and pulmonary vascular resistance in patients with congenital heart disease and after cardiac surgery. Inhaled NO improves oxygenation in newborns with persistent pulmonary hypertension, presumably by decreasing shunting across a patent foramen ovale or ductus arteriosus.

Inhaled NO has now become a therapeutic option in patients with severe adult respiratory distress syndrome (ARDS). Pulmonary hypertension and hypoxemia universally occur in patients with ARDS; the severity of each relates to mortality. Intravenous pulmonary vasodilator therapy with agents such as nitroglycerin sodium, nitroprusside, alprostadil (prostaglandin E), epoprostenol, and nifedipine results in small decreases in pulmonary arterial pressure but large decreases in systemic blood pressure and arterial oxygenation. The adverse effects on oxygenation occur because the decrease in pulmonary vascular resistance is primarily due to the reversal of hypoxic pulmonary vasoconstriction. In patients with ARDS, inhaled NO can decrease pulmonary vascular resistance and improve oxygenation. The improvement in oxygenation occurs because inhaled NO (as opposed to intravenous vasodilators) is distributed according to ventilation so that the associated vasodilation increases blood flow to well-ventilated alveoli. The magnitude of improvement in pulmonary hypertension and oxygenation is directly related to the degree of abnormality in each. Nitric oxide concentrations of 0.3 to 4.0 ppm are effective, and beneficial effects are sustained during administration periods as long as two months for patients on ventilators.

Although inhaled NO is clearly effective in improving pulmonary hemodynamics and oxygenation, the role of inhaled NO in patients with ARDS requires additional study. By ameliorating pulmonary hypertension and hypoxemia, inhaled NO may decrease the incidence of pulmonary edema, oxygen toxicity, and pulmonary barotrauma, thereby allowing the lungs to heal. The effects of nitric oxide and nitrogen dioxide on repair or fibrosis in injured lungs and on pulmonary host defenses are largely unknown, however. Survival with prolonged administration of inhaled NO was 86% in one major study, but only 14% in another major study. Inhaled NO is currently used by many centers on a "compassionate use" basis for patients with severe hypoxemia, but controlled clinical trials are needed to determine its value in most patients with ARDS.

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Operative Hysteroscopy Intravascular Absorption Syndrome

ANESTHESIOLOGISTS routinely anticipate, recognize, and treat volume and electrolyte disturbances during transurethral resection of the prostate (TURP syndrome), but it is now established that operative hysteroscopy has the same potential for these serious pathophysiologic changes. The absorbed volume of fluids employed for uterine distention depends on the extent of intrauterine transection of vascular beds, the intrauterine distention pressures, the volume of media used, and the duration of the procedure. The biochemical composition of the instilled fluids determines the physiologic alterations.

Menstruant women have been shown to be at high risk for death or brain damage from even modest hyponatremia and, perhaps even more important, hypo-osmolemia. The earliest signs of this syndrome are confusion and bradycardia with systolic and diastolic hypertension. As with the TURP syndrome, it may be advantageous to use regional anesthesia because awake patients are likely to display precursor symptoms that portend impending brain or cardiac dysfunction and injury. For patients subjected to general anesthesia, delayed diagnosis of the syndrome of operative hysteroscopy intravascular absorption (OHIA) can be mitigated against by adhering to a predetermined schedule for sampling patient blood for rapidly measuring the serum sodium concentration. An instillate solution that contains ethanol 1% as a biologic marker can be used to estimate fluid absorption by measuring the end-tidal ethanol content.

Dextran 70 32% in a 10% solution of glucose (Hyskon) is a hyperosmolar, viscous fluid (molecular weight 70,000) that is immiscible in blood and slowly metabolized over several days. It increases plasma oncotic pressure to the extent that it expands blood volume by 10 times its absorbed volume. When substantial volumes (> 500 ml) are absorbed, hypervolemic pulmonary edema is to be expected; serum osmolarity and sodium changes are less prominent. Therefore, the use of Hyskon demands meticulous measurement of the instilled volume and a preoperative agreement with the surgeon as to the maximal acceptable volume instilled before the hysteroscopy is stopped. A prominent sign of intravascular overload is decreasing arterial oxygen saturation. Moreover, intravascular overload may first become manifest during emergence from anesthesia when the vasodilatory effects of anesthetic drugs and techniques are dissipated or positive pressure ventilation is discontinued. Hyskon may directly cause a coagulopathy.

Both 1.5% glycine and a premixture of 2.7% sorbitol and 0.54% mannitol are low-viscosity, hypo-osmolar (200 and 178 mOsm per liter, respectively), rapidly metabolized instilling fluids. Excessive absorption can result in substantial hyponatremia and hypo-osmolemia.

A solution of 5% mannitol may have a wider margin of safety compared with the other instilling fluids because it is iso-osmolar (278 mOsm per liter). In fact, mannitol is commonly administered intravenously during neuroanesthesia, often in volumes and concentrations greater than those encountered in operative hysteroscopy and without pathophysiologic sequelae. Excessive intravascular absorption of instilled 5% mannitol solution will cause hyponatremia, but serum osmolarity will not change. Furthermore, mannitol initiates a diuresis that self-corrects volume overload.

Although treatment regimens for hyponatremia, hypo-osmolemia, and circulatory overload are well established, anesthetic management of these otherwise healthy women should emphasize the prevention of the OHIA syndrome and its attendant morbidity and possible mortality.

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Desflurane—A New Inhalation Anesthetic

BEFORE 1993, three volatile inhalation anesthetics were in routine use. These inhalation anesthetics—halothane, enflurane, and isoflurane—have many desirable qualities. As the number of outpatient procedures continues to increase, recent emphasis in anesthetic practice has been toward the development of agents that provide more rapid recovery. A new inhalation anesthetic, desflurane, provides more precise control during delivery and more rapid recovery than preexisting inhalation anesthetics. These improved properties result from its low blood-gas solubility coefficient, which promotes more rapid induction and emergence from anesthesia. This blood-gas solubility coefficient is 0.45, which is similar to cyclopropane (0.42) and nitrous oxide (0.47) and less than half that of isoflurane (1.4). Sevoflurane is another new inhalational agent that has a low solubility coefficient (0.60), but it is still undergoing clinical trials for approval by the Food and Drug Administration.

Desflurane was recently released for clinical use in the United States. Because its high vapor pressure at 20°C is 669 mm of mercury, desflurane is near its boiling point at room temperature. Accurate delivery must be accomplished by using a heated vaporizer that maintains its near-constant temperature, converting desflurane to a gas and then blending this gas with fresh gas flow. In addition to its lower blood-gas solubility, another of desflurane's attractive properties is its low level of biotransformation in the body. Many of the toxicities attributed to earlier inhalation anesthetics are caused by metabolites from hepatic biotransformation. Desflurane is biotransformed at less than an eighth the rate of isoflurane, which previously had been the least biotransformed inhalation agent. In addition, it has excellent physical stability. Its effect on vital organ systems, when higher concentrations are used, is similar to that of existing inhalation agents. It depresses ventilation, lowers mean arterial pressure, and causes some cerebral vasodilation.

Desflurane differs from sevoflurane in several ways: it is stable in carbon dioxide absorbents where sevoflurane has some instability, it undergoes much less hepatic biotransformation than sevoflurane, it may produce a tachycardia at higher concentrations, and its pungency produces airway irritation that precludes its use for inhalation inductions in children.

Desflurane should not produce hepatotoxicity of the form observed with halothane. Although it is not perfect, it does appear to offer specific advantages over previous agents. Cost-benefit comparisons with existing inhalational agents will be another important consideration.

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Intraspinal Narcotics for Obstetric Analgesia

THE use of intraspinal narcotics has found widespread acceptance in obstetric analgesia, but has generally been confined to epidural administration. A better understanding of the pharmacology of narcotics and advances in the equipment available have led to the increasing use of intrathecal narcotics in labor. This technique is now a reasonable alternative for women in early labor, in particular, and perhaps a cost-effective alternative in obstetric centers without full-time "in-house" obstetric anesthesia services.

The early use of intrathecal morphine sulfate for labor was effective, but the side effects of pruritus, nausea, and vomiting and the limitations of a single injection (that is, no easy route for further intervention) and its slow onset (30 to 90 minutes) led to its near abandonment. The technique was recently "reinvented," however. The problem of a slow onset was solved by adding one of the lipidsoluble narcotics' fentanyl citrate (25 μg) or sufentanil citrate (10 μg), to intrathecal morphine (0.1 to 0.3 mg). The lipid-soluble narcotic rapidly penetrates neural tissue, and thus, analgesia is achieved within minutes, allowing morphine to become effective later. The lipid-soluble narcotics provide brief (60 to 90 minute) analgesia, whereas the morphine may provide hours of pain relief. A second advancement was the introduction of both a combined spinal-epidural technique and long pencil-point spinal needles. Using the latter produces a low incidence of postdural puncture headaches (< 1%). The needles can be passed through a standard epidural needle, thus allowing the administration of intrathecal narcotics—morphine, fentanyl, or sufentanil, and possibly small doses of lidocaine or bupivacaine hydrochloride—before placing an epidural catheter. The catheter can then be used for further labor analgesia as needed or for a surgical delivery with concentrated local anesthetics, given epidurally, if indicated.

The use of the combined spinal-epidural technique has been particularly helpful for patients in early labor or for those seeking a more natural delivery—that is, some analgesia but full or greater motor control. This technique has even permitted women to ambulate during labor and is commonly referred to as a "walking epidural." It may also be useful in small community hospitals unable to provide 24-hour epidural anesthesia coverage. Intrathecal narcotics can be administered to provide some pain relief and the catheter then used for further labor analgesia or possible surgical intervention.

This technique is not without side effects. Pruritus is common (50%) and must be treated aggressively (using nalbuphine hydrochloride or naloxone hydrochloride) if the patient is to be comfortable. Nausea and vomiting also occur, but to a lesser extent (30%). Mild hypotension and even respiratory depression have also been reported. Further, narcotics alone provide only analgesia, which may not be sufficient pain relief for many women in active labor who will require further intervention, such as epidural analgesia with a local anesthetic. The use of intrathecal narcotics for labor and of the combined spinal-epidural technique has added an important new choice for labor analgesia.

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New Advances in Airway Management

IN the past, clinicians faced with patients requiring ventilation had limited options short of tracheotomy: ventilate by mask or intubate by blind nasal intubation or direct laryngoscopy. Inadequate ventilation due to unsuccessful management of a patient's airway has been shown to be the main cause of brain damage or death. The American Society of Anesthesiologists' "difficult airway" algorithm presents a logical progression of alternative airway management techniques after failed intubation.

One of the key issues for managing the airway is having several options available to physicians to handle the many different airway scenarios. Two new and innovative methods can help: laryngeal mask airway and esophageal-tracheal combination tube.

The laryngeal mask airway consists of a conventional plastic tracheal tube in which the distal end has been replaced by a miniature inflatable face mask. It is inserted blindly through the oral cavity so that the distal end, once inflated, forms an oval seal around the laryngeal inlet. It allows for both oxygenation and ventilation. Both medical and paramedical personnel have a higher rate of success in placing the laryngeal mask airway than inserting an endotracheal tube by standard laryngoscopy. The laryngeal mask airway has few contraindications, the most important ones being patients with a full stomach, massive obesity, hiatal hernia, or gastroesophageal paresis.

The esophageal-tracheal combination tube, in contrast to the laryngeal mask, has been approved for use during cardiopulmonary resuscitation both in hospitals and in the field. It consists of a double-lumen tube with two inflatable balloon cuffs. The proximal (or pharyngeal) cuff replaces the face mask of the old esophageal obturator airway. The "esophageal" lumen has a distal blocked end and perforations at the level of the pharynx. The second lumen resembles a conventional endotracheal tube. The combination tube is inserted blindly through the oral cavity, and regardless of whether esophageal or tracheal intubation is accomplished, the physician is able to ventilate the patient using the appropriate proximal lumen. This combination tube also has contraindications, the most important being esophageal disease. In summary, both methods can be life saving and are especially helpful to physicians who rarely do laryngoscopy.

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Managed Care: A White Paper

TIMOTHY B. NORBECK

A PATIENT needs an expensive new drug to treat his prostate cancer. His HMO, unwilling to pay for the continued use of the drug, suggests a more "cost effective" treatment: surgical removal of his testicles. Castration, it argues, curbs the production of a male hormone needed for the cancer to grow.

A woman with endometriosis needs exploratory surgery to determine whether or not her condition might require a hysterectomy. She wants her surgeon to have the option to perform the procedure if necessary, so as to spare her the pain and trauma of two separate surgical procedures.

There's only one catch. Her health plan would not permit such an option, requiring the surgeon to report his findings after the exploratory surgery. The result: two separate operations.

Another patient, 40 years of age and in constant pain, was diagnosed with bilateral hip dysplasia. An MRI and bone scan showed that she needed a hip replacement. Her health plan told her to wait until she was 65.

In what lawyers call the largest verdict in Georgia history (2 February 1995), a Georgia family was awarded $45 million after their son had to have his hands and legs amputated following an HMO's decision to have him treated at a hospital 42 miles from his home. On the way to that hospital, which gives the HMO a 15% discount, the six-month-old's heart stopped. Although he was revived, circulation to his hands and legs ceased and gangrene set in. The plaintiff's lawyer called the case an example of what happens when cost-conscious managed-care plans cut corners.

In a New Britain, Connecticut, case, a bladder cancer patient was told by his health plan that his urologist had "failed to reapply" as a participant and that he would have to find another physician. To complicate matters, the patient's spouse was seeing two physicians for a disc problem and found to her chagrin that they, too, were out of the plan. In a suit against the carrier, the patient claimed that it had been falsely stated to him that their doctors had chosen not to sign on with the health plan.

In a companion case, the physicians claimed that they had never been notified of the deselection by the carrier and only learned of it through a rumor that suggested that they needn't bother to reapply. The insurer never alleged a quality of care problem and offered no other explanation. This suit also claimed that the carrier had violated the managed-care law which had been enacted in 1994.

Unfortunately, both actions, brought in September of 1994, were thrown out in a December 1994 decision by Hartford Superior Court Judge, Jon C. Blue. Judge Blue ruled that ERISA (the Employee Retirement Income Security Act), which protects employee benefit plans from outside regulation, pre-empted all their claims. The Connecticut State Medical Society is filing an Amicus brief on both cases in support of the patients and physicians. It is expected that the AMA will also file an Amicus brief.

Remember the Les Aspin escapade almost two years ago? Then Secretary of Defense, he needed additional vaccinations because of his expanded international travel. He received a cheaper but somewhat riskier vaccination. Managed care saved $1.55 on that vaccination, but he ended up in an intensive care ward. I doubt that anyone asked Mr. Aspin whether or not he wanted to pay the $1.55 and avoid the extra risk.

These are only a few of a growing litany of such abuses in the new managed -care revolution. At its best, managed care can save dollars and provide quality of care. At its worst, it is disastrous to patients and to the physicians who try to render the care they were trained for years to give. And anywhere in between doesn't appear to be acceptable to patient or physician.

As columnist Bob Herbert has said, managed care is, in essence, corporate care. Decisions that once were made only by doctors are being taken over by executives obsessed with their bottom lines.

Physicians don't oppose managed care at its best. The Mayo Clinic, Cleveland Clinic, and Kaiser Permanente are just several good examples of it. But mismanaged care for the benefit of stockholders and CEOs and at the expense of patients, and without the necessary checks and balances to protect those patients, is anathema to those who render care. Patients justifiably are not comfortable with anyone making medical decisions for them except their own personal physicians.

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A Texas physician was named "primary care physician of the month" by a health plan this past July and dismissed in September. A quality of care problem? No! The insurance company merely deemed his care to patients to be too expensive and acknowledged in a letter to him that the decision to drop him was "based on reasonable business considerations, and does not constitute a judgement as to the quality of care you provided." When the physician appealed his dismissal, pointing out that he had a disproportionately high number of severely ill patients, the insurer reinstated him. But that insurer had already directed letters to his patients asking them to choose another physician! Physicians are being excluded from plans based on some kind of financial analysis that they don't even have access to, without regard to the sacrosanct choices and professional relationships so important to the patients involved.

In late 1993, an insurer dropped a third of the 8,000 participating physicians in its other health plans when it began a new network in Washington, D.C. Many of those dropped served low-income minority patients who tended to generate higher medical costs. Such patients are at great risk (along with the physicians who treat them) when their health plans are looking to save on costs. And those health plans adhering rigidly to a "bottom-line is the only line" philosophy want a bare minimum of sick patients in their networks.

But inner-city patients who face greater odds against good health and low medical costs are only some of those who are constantly at risk in managed care plans. Those in rural areas of our nation, accounting for about 29% of the U.S., will encounter greater difficulties in seeing physicians of their choice as managed-care plans proliferate and restrict the number of patients and physicians in their networks. Chronically ill patients, generating considerable costs and requiring continuity of care, also stand to lose under managed care.

Managed-care proponents argue with some justification that cost experience is important to their survival and profitability. Physicians, who are in the trenches rendering care, claim that they are being economically credentialed out of their patients' health plans. And furthermore, they argue that armies of claims clerks, administrators, form processors, functionaries, and other bureaucrats are helping insurers to impose a sinister form of rationing of care by hassle and red tape—and all under the guise of cost effectiveness when, in fact, these deterrents to care appear to be related to a profit motive.

Appearing to sustain these objections from patients and physicians alike is a survey taken by Group Health Association of America, Inc. (GHAA), a lobby for HMOs. According to GHAA, 49% of HMOs surveyed nationally in 1992 adjusted the compensation of "primary-care physicians" on the basis of "utilization or cost experience." Twenty percent of HMOs surveyed adjusted the pay of primary-care physicians on the basis of "consumer satisfaction" and 20% on the basis of quality of care.

One of the problems in this new impersonal world of managed care is that patients have become "consumers" or "clients" and physicians are called "providers" and "vendors." And it's getting worse.

By limiting the number of physicians in their health plans (and eliminating high cost patients as well), insurers can guarantee their profits. If a specific health plan accounts for 40% of a particular physician's patient load rather than, let's say, 10% or 15%, then the insurer has far more leverage and control over that practice. If profits dip a little, the insurer merely ratchets down the physician's reimbursement by a like amount. What can the physicians do but accept the unfair allotment? Surely they can't issue an ultimatum to the plan or take a walk. They would be losing 40% of their practice, and leaving those patients to fend for themselves in finding other care in an increasingly impersonal system. The patient-physician relationship has little meaning to an insurance company. That is why a year ago one insurer in Kansas City announced its intention to "improve our inefficiencies in medical management and improve our financial results," and then promptly dumped nine hospitals and more than 600 physicians from their HMO network. Since that time, the insurer has reinstated some of those physicians, but only after reporters put a spotlight on these activities.

That is why another insurer invited physicians in the Santa Cruz, California, area to join its network. When the physicians and their patients were locked in, the insurers "deselected" 70% of the physicians without notice.

That is precisely the strategy of many managed care plans—to limit the number of physician participants. If the plan accounts for only 10% or 15% of the physicians' patient load, it has no leverage. Will patients have their choice of physicians (a right deemed very important in every public poll), and will physicians have the autonomy to make decisions on behalf of and with their patients? Who will be in charge of our medical care system? Will it be physicians and other healers, or will it be bean counters and bureaucrats and profiteers?

Central to this discussion is the proposed "any willing provider" legislation. Such legislation would require insurers to accept in their health plans any qualified and credentialed physicians or hospitals willing to abide by the plan's reimbursement rates and quality standards. Most (but not all) physicians and hospitals agree with the need for such legislation, as do consumer groups. They believe that patients should have their own choice of physicians and that "continuity of care" is a must. The woman seven months into her pregnancy doesn't want to be forced to switch obstetricians because her employer changed health plans.

Insurers, of course, take the opposite tack. But that should not be a surprise to anybody; the basis of managed care is the ability of insurers to restrict choice. They also claim that "any willing provider" legislation will mean extra costs for the plan. The fact is that more than 20% of premiums disappear into the black hole of insurance company profits and administrative expenses. The truth is that the jury is still out on cost comparisons and alleged claims of savings in managed-care organizations vs. other entities.

Economists point to the difficulty of measuring the effectiveness and costs of managed care because HMOs regularly attract younger and healthier people, while those with medical problems tend to prefer traditional fee-for-service insurance. Many health economists believe that managed care thus far may have only shifted what money it saves in the system to its own bottom line. Furthermore, they are coming out ahead because of the discounts they extract from physicians and hospitals while still charging employers more than necessary.

In October 1993, a report by Congress's watchdog, the General Accounting Office, said the "Physicians Payment Review Commission and the Congressional Budget Office have reported that the evidence on the effectiveness of managed care to control costs is inadequate and inconclusive." A recent Congressional Budget Office update said that the office could not conclude that the total costs per HMO enrollee have grown less rapidly than costs per enrollee in fee-for-service plans. In fact, the update said, total costs per enrollee may have grown as rapidly or more rapidly in HMOs than in fee-for-service plans.

But even if people come to think that managed care does save money, many economists proclaim that any savings would largely disappear if everybody had managed-care coverage. They say that these alleged savings are illusory for the country as a whole. In fact, a whole new layer of intermediaries who treat no patients and cure no ills is being subsidized by the system as utilization review companies. One physician may have to deal with 10 to 20 different review organizations a day, each of which has unique criteria for evaluating medical claims. The review industry now takes more than $7 billion from the system.

Presently when a managed care entity negotiates a lower rate with a hospital, that hospital must cost-shift that reduction to someone else who will pay a higher rate. The lower the rates for some, the higher they are for others. Consequently the more people receiving those discounts, the fewer there will be to pay the full price.

Of particular interest is the insurance industry's glaring inconsistency regarding the concept of "any willing provider." The insurers have said in opposition that "any willing provider laws have reduced the ability of managed-care organizations to achieve administrative efficiencies, and saddle them with unneeded providers." But what do you think their position is when the shoe is on the other foot and their noses are at the window, just like the physicians and hospitals they seek to deselect?

The reader may recall during the health-care reform debate of 1994 that there were discussions held about creating large purchasing pools or alliances which would use their purchasing power to negotiate better rates with carriers. Such talk elicited a wave of stormy protests from the insurance industry. The same insurers who so ardently support selective contracting with physicians and other providers demanded just as passionately that the alliances allow all carriers to participate. One carrier protested "Government should not have the authority to ordain winners or 'select' those accountable health plans which are allowed to compete in a purchasing alliance."

Another said that "Competition and free market sources should be allowed to dictate which accountable health plans will flourish within a purchasing alliance." A Blue Cross Blue Shield Association letter dated 17 February 1994, stated that "Under no circumstances should price parameters be a criterion for accountable health plan certification or selection."

The Group Health Association of America (GHAA—the HMO association lobby) wailed that "Exclusion of qualified plans by a health alliance in a mandatory market would mean that excluded plans could not compete in the health alliance market at all. Even if alliance membership were limited to the small group market," GHAA went on to complain, "such action could put health plans out of business entirely..." Sound familiar? Those are the same identical arguments that physicians make in defense of their right to compete. The insurers opposed allowing purchasing pools to selectively contract because it restricted consumer choice, "the market can't have too much competition," and price should not be a consideration for selection.

For the insurers, apparently it depends on whose ox is being gored. But there is one notable difference between the insurers' and physicians' positions. America's patients support the concept of "any willing provider" and are adamant about preserving their right to choose their physician. The public doesn't feel that way about any particular insurer's right to participate.

Patients will never be deluded into thinking that their insurance company cares as much about their health as does their physician. Growing insurance company influence over medicine raises many important and legitimate questions. Have the patients' interest given way to the bottom-line? Are there any patient advocates left in the system at all, besides physicians?

As insurers gain more control of the system, we are all in jeopardy of economics playing too big a role in driving patient-care decisions. It is obvious that efforts to enhance the insurers' health care bottom-line are coming more and more into conflict with patient interests. Columnist Herbert put it best: efficiency and productivity are the twin shrines at which corporate executives worship. They are the stuff of which bonuses are made. But their effect on patients can be catastrophic.

Last year one health plan in California declared its largest dividend in history to stockholders, and yet it simultaneously increased the premiums charged to subscribers by five percent and cut payments to physicians by about six percent. The important question to ask here, aside from the obvious unfairness of it, is what effect did this have on the quality of care?

Another plan saw its profit margin double in the past two years. Where did that growing profit margin come from? It cut the fees paid to hospitals and physicians by 12% to 20% across the board. How much more blood can be taken from the stone before quality of care is affected?

Insurers must be subject to some checks and balances. Fairness must be restored in the system, fairness to both patients and to those who labor in treating their illnesses and maintaining their health. Patients and their diseases do not fit into neat little boxes.

If not "any willing provider" legislation, then there must be other safeguards imposed on these insurers to make certain that the patients' best interests are observed and that all qualified physicians are allowed to participate in these plans—and be free to make the best decisions with their patients regardless of the possible extra costs involved. If such checks and balances are not in place soon, America's patients will lose. More and more of them will have to change physicians at inopportune times, if only because their employers changed plans. Patients in inner-cities and underserved communities will face discriminatory contracting by managed-care plans. Patients in rural areas of the country will encounter less access and more travel to see their physicians. Those chronically ill will be passed from one plan to another. A point-of-service (POS) option is an important feature which must be available to patients, and without unreasonable extra costs to them.

Still another problem looms for these patients who have to change physicians. The U.S. Preventive Services Task Force's report, published in 1989, concluded that preventive care is most effective when one regularly sees or speaks to a doctor who is familiar with the patient's habits and family history. It should come as no surprise that such a physician is better qualified to tell that patient which tests are needed, and when, than a doctor who had never seen the patient before and may never see him or her again. That physician is also in a better position to influence one's self-destructive behaviors that are linked to the leading causes of death.

In a 1994 *Newsweek* poll, 76% of Americans said they were unwilling to accept less choice of doctor or hospital—even if it helped bring down health-care costs and make universal coverage possible.

We know that managed care strives to undercut competition, and that in order to retain market share, some physicians and hospitals have been forced to see patients at a loss. Managed-care advocates talk of the need for patients and families to become educated health-care consumers, but they are rarely informed of what choices are actually available to them.

The health-care debate has become a dialogue over mergers, buyouts and acquisitions instead of illness, aging, and vulnerabilities. Patients and their greatest advocates, physicians, are being left out of this process. Those with bottom-line mentalities will be the only ones to gain in such a system. Should our health- care system be put in the hands of the very institutions that have already proven their skill and expertise at selecting the lowest risks, limiting coverage, and denying or delaying payments?

Consider that the 8 largest insurance companies already own 45% of 562 HMOs, and the 10 largest insurers provide service to 44% of HMO enrollees in the nation. Consider that insurance companies make physicians and hospitals accountable for medical decisions made on behalf of patients, but the insurers don't have to account to anyone for their decisions—even denials of care, often made by nonmedically-trained clerical employees. With insurers getting larger and the role of physicians in managed care plans diminishing, patient interests are in real jeopardy. Some have suggested that managed care may be a solution for the Medicare Program but the HCFA chief, Bruce C. Vladeck, said as recently as 10 February 1995, that it was no panacea. Mr. Vladeck says that Medicare pays too much because the health plans attract the healthier members of the Medicare population. Managed-care presents other problems, too, which have caused Medicare officials to proceed slowly in this regard. They have said they do not want to move Medicare participants too quickly without "adequate regulation to managed care."

What are some of the checks and balances necessary to protect America's patients? The American Medical Association, which doesn't support "any willing provider" legislation at the federal level (and believes that the matter should be left to the states), is promoting its Patient Protection Act as the best mechanism to ensure informed choices and high quality of care. It would require insurance companies to give patients all of the information needed before they join a health plan. The insurers would have to tell what is and what isn't covered in their plan. No surprises! They must explain what sort of incentives are present to limit the care received. Insurers must also make clear what approval process is necessary for patients to get the care they need and for the physicians who seek to treat them.

The Patient Protection Act also will ensure the physicians' say in the plan's medical policies and make it illegal for the plan to fire a physician for giving all the care needed. And it will allow the patient to choose his or her own physician—instead of having someone else make that decision. In short, the Patient Protection Act requires insurance companies to give patients a full explanation of how their plans limitations affect their care.

The right of patients to choose, as well as the right of physicians to participate in a plan, and treat patients according to their medical needs, must be preserved at all costs. Otherwise, patients will not be protected and it won't matter what health system reform brings. Patients' care will be forever relegated to second-rate status and even more subservient to those promoting "bottom-line" agendas, with patients, physicians, hospitals and other providers mere pawns on a chessboard dominated by the managed-care industry kings.

Adapting to the Stark II Antireferral Ban: A Practical Analysis of the Prohibition and Exceptions

STEPHEN E. RONAI, ESQ. AND NEAL N. PETERSON, ESQ.

Introduction

ALTHOUGH partisan divisiveness has contributed to the sidetracking of Congress's health-care reform efforts, Congress has been able to reach a legislative consensus on solutions designed to contain alleged physician overutilization of the Medicare and Medicaid programs. The Ethics In Patient Referral Act of 1989 (commonly known as the "Stark Bill" ["Stark I"] after the Act's primary sponsor, Representative Fortney Stark) generally prohibits referrals from a physician to entities with which the physician has a "financial relationship" for the furnishing of clinical laboratory services for which payment is made under the Medicare program. The Omnibus Budget Reconciliation Act of 1993 ("OBRA '93") greatly expanded the Stark I clinical laboratory referral prohibition to include services provided under Medicaid, and expanded the referral prohibition to 10 additional diagnostic and treatment modalities, ie, "designated health services," effective 1 January 1995. The amended statute with its expanded prohibitions has been termed "Stark II."

Stark II's expanded restrictions require physicians to obtain a practical understanding of the Stark II antireferral prohibition and its numerous exceptions. This understanding is essential in order that physicians and their financial advisors can determine whether current financial and referral relationships fall within the Stark prohibition and, if so, the manner in which such relationships can be reconstructed if required. Moreover, since the Secretary of the Department of Health and Human Services (the "Secretary") has not yet issued final regulations to clarify the 1989 Stark I clinical laboratory referral prohibition, OBRA '93's extension of the Stark II prohibition to 10 additional "designated health services" increases the complexity and difficulty of applying the Stark II prohibition to current physician practice activities.

The statutory provisions of Stark II were briefly summarized as part of a general overview of fraud and abuse legislation by Lois B. Tanzer, Esq. and Elizabeth Schlaff, Esq. in an earlier issue of *Connecticut Medicine*.* In an effort further to assist physicians seeking guidance in the application of Stark II, this article will provide a more detailed and in-depth review of the scope of the Stark II prohibition in the context of basic hypothetical situations that illustrate the application of the general antireferral prohibition, and will also review some of the definitional issues that must be resolved in order to apply the various exceptions to Stark II.

Stark II's General Prohibition on Certain Referrals and Billing

In general, effective 1 January 1995, Stark II now broadly prohibits referrals by a physician to an entity with which the physician (or an immediate family member of the physician) has a financial relationship for the provision of a designated health service for which payment will be made by Medicare or Medicaid. In addition, Stark II prohibits the entity to which such a referral is made from presenting a claim or bill to anyone for payment for the provision of the designated health service. Following

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*Tanzer LB, Schlaff E: Safe harbors and stark realities. *Conn Med* 1994; 58:609-12.

these broad prohibitions, Stark II provides numerous exceptions. When analyzing a situation for Stark II purposes, the following questions should be addressed in order to determine at the outset whether the statute applies:

1. Is there a referral by a physician to an entity?
2. Is the referral for the provision of a "designated health service" for which payment will be made by Medicare or Medicaid?
3. Does the referring physician (or an immediate family member of the physician) have a "financial relationship" with the entity?
4. Does Stark II specifically exempt the financial relationship so that the referral may be made?

If the answer to any of the first three questions is "no," then Stark II does not apply and the physician's referral to the entity is not prohibited. Conversely, if the answer to each of the first three questions is "yes" and no exemption for the financial relationship exists, then Stark II prohibits the physician's referral. While this checklist of questions may make analysis of Stark II problems appear simplistic, imprecise legislative drafting and the absence of guidance customarily available from agency regulations and court decisions create difficult issues of statutory interpretation.

Several statutory definitions are crucial to a Stark II analysis. As outlined above, Stark II prohibits certain referrals for the provision of "designated health services," which are the following items or services:

1. clinical laboratory services
2. physical therapy services
3. occupational therapy services
4. radiology services, including magnetic resonance imaging, computerized axial tomography scans, and ultrasound services
5. radiation therapy services and supplies
6. durable medical equipment and supplies
7. parenteral and enteral nutrients, equipment, and supplies
8. prosthetics, orthotics, and prosthetic devices and supplies
9. home health services
10. outpatient prescription drugs
11. inpatient and outpatient hospital services

A referring physician (or an immediate family member of the physician) has a "financial relationship" with an entity if he or she has an ownership or investment interest in the entity or a "compensation arrangement" with the entity. Stark II broadly defines a "compensation arrangement" as any arrangement involving any "remuneration," which includes "any remuneration, directly or indirectly, overtly or covertly, in cash or in kind."

Several other terms essential to a Stark II analysis are not defined in the statute. For example, Stark II does not define either "entity" or "immediate family member." Therefore, for interpretive guidance as to those terms, we currently must look to the Secretary's proposed (not final) regulations implementing Stark I's prohibition on referrals for clinical laboratory services. The Stark I proposed regulations define an entity as "a sole proprietorship, trust, corporation, partnership, foundation, not-for-profit corporation, or unincorporated association." Also according to the Stark I proposed regulations, immediate family members include one's spouse; natural or adoptive parent, child, or sibling; stepparent, stepchild, stepsister, or stepbrother; in-laws; grandparent (and his or her spouse); and grandchild (and his or her spouse). With this indirect guidance obtained from the regulations proposed to implement the Stark I clinical laboratory prohibition, physicians and their advisors can gloss the statute and determine its applicability to a referral relationship.

Stark II's Exceptions

While Stark II's prohibition on referrals broadly affects existing relationships, the prohibition is subject to significant exceptions. Foremost among the exceptions are provisions excluding certain physicians' services and in-office ancillary services from the referral ban. Pursuant to these exceptions, a member of a "group practice" may refer patients covered by Medicare or Medicaid to other members of the same "group practice" for the provision of most designated health services.

Exceptions also exist for certain compensation arrangements which would otherwise trigger Stark II's prohibitions, such as rental of office space and equipment, *bona fide* employment relationships, other personal service arrangements, and recruitment of a physician by a hospital. These exceptions contain common requirements regarding the terms of the arrangement and the amount paid pursuant to the arrangement.

First, the specific terms of the arrangement must be established in advance to last for at least one year and must be in writing. Second, the amount paid must be "commercially reasonable" even if no referrals are made by the physician to the entity. Similarly, the amount paid must be "consistent with fair market value." Finally, the amount paid must not be determined in a manner that takes into account (directly or indirectly) the volume or value of any referrals that are made by the physician to the entity. Although each of these exceptions has its own additional requirements which also must be satisfied, the common thread exemplifies the policy behind Stark II—financial relationships must not be allowed to create incentives for physicians to overutilize the Medicare and Medicaid programs.

Two Examples of Physician Organizations

Understanding of the Stark II prohibitions and the exceptions is enhanced if the statute is applied in specific factual contexts. Consider as examples the following two formats of physician organizations, the first a nonintegrated group practice and the second a traditional professional corporation ("P.C.") with several offices.

In the first hypothetical situation, each of four primary-care physicians is the sole shareholder of his own P.C. and bills individually for the services he renders, ie, four separate physician P.C.s. The physicians make fixed equal contributions to a shared bank account. The funds in this account are used to pay for office space in a building in which the physicians share an office suite and also for the expenses related to furniture, support personnel, and diagnostic equipment, such as a blood and urine testing machine. These four physicians often refer their patients, including patients covered by Medicare and Medicaid, to each other for clinical laboratory services.

In the second hypothetical, 12 physicians are equal shareholders in a fully-integrated P.C. that operates out of three offices, eg, X, Y, and Z. The P.C. offers clinical laboratory services in offices X and Y and physical therapy services in office Z. The P.C. bills for services rendered by members of the group and makes distributions to the 12 physician shareholders according to their percentage of stock ownership after satisfying the amounts due to them under their employment agreements. As in the first hypothetical case, these physicians refer their patients, including patients covered by Medicare and Medicaid, to each other for clinical laboratory services and physical therapy services.

Will Stark II prohibit the referrals made in these two hypotheticals?

Application of Stark II to the Examples

The first question to ask when determining the applicability of Stark II is whether a physician is making a referral to an entity. In the first situation, each physician refers patients to another physician's P.C. In the second, each physician refers patients to other physicians in the same P.C. Although "entity" is not defined in the statute, a corporation is an entity according to the Secretary's proposed Stark I regulations. Thus, in the hypothetical situations presented above, physicians probably are making referrals to entities for purposes of Stark II analysis.

The second question to ask is whether the referrals are being made for the provision of designated health services for which payment will be made by Medicare or Medicaid. In each of the situations described above, physicians make referrals for clinical laboratory services. Additionally, the physicians in the second hypothetical case also refer patients for physical therapy services. Both clinical laboratory services and physical therapy services are designated health services under Stark II. Furthermore, both hypothetical situations contemplate referrals of patients eligible for Medicare and Medicaid and this aspect of the Stark II referral prohibition is implicated.

The third question to ask when conducting a Stark II analysis is whether the referring physician has a "financial relationship" with the entity to which the referral is made. At this point, our hypothetical situations may diverge. In the first situation, the four physicians split the rent for their shared office space and jointly own certain pieces of diagnostic equipment through fixed equal contributions to a shared bank account. The extremely broad definition of "compensation arrangement" could possibly be interpreted to include the arrangements of these physicians, although neither court decisions nor agency regulations have extended to this expanded interpretation. However, we can reason from Stark II's policy against financial incentives for physicians that this arrangement probably would not constitute a "financial relationship." The four independent P.C.s bill separately and the referring physician receives no financial benefit from making the referral. Therefore, because a "financial relationship" probably does not exist in the first hypothetical case, an essential prerequisite to Stark II's applicability has not been satisfied. Thus, Stark II likely would not prohibit any of those physicians from referring patients to the other physicians who share the same office suite with them.

In the second hypothetical case, however, each physician clearly has a financial relationship with the entity to whom referrals are made. These 12 physicians are equal shareholders in the P.C. and thus have an ownership or investment interest in the entity. Furthermore, the P.C. distributes profits to these physician shareholders thereby creating a compensation arrangement with each one of them. As a financial relationship exists in this second hypothetical involving an integrated P.C., referrals will be prohibited unless an exception applies.

The exception for in-office ancillary services contains three "tests," ie, the provider test, the location test and the billing test, all of which must be satisfied for the exception to apply. According to the provider test of the in-office ancillary services exception, the services must be provided personally by the referring physician, another member of the referring physician's "group practice," or individuals who are directly supervised by physicians in this "group practice." Thus, the application of the in-office ancillary services exception requires an analysis of whether the group practice definition is satisfied.

A group practice "means a group of two or more physicians legally organized as a partnership, professional corporation, foundation, not-for-profit corporation, faculty practice plan, or similar association." In addition, all of the following five requirements must be satisfied to qualify as a "group practice":

1. Each individual physician member must provide substantially the full range of his or her services through the joint use of shared office space, facilities, equipment, and personnel.

2. Substantially all of the aggregate services of the physician members must be provided through the group and be billed under a billing number assigned to the group, and amounts so received must be treated as receipts of the group.
3. The overhead expenses of and the income from the group practice must be distributed in accordance with methods previously determined.
4. No physician member may directly or indirectly receive compensation based on the volume or value of his or her referrals.
5. Physician members must personally conduct at least 75% of the physician-patient encounters of the group practice.

The lack of clarity in the statute's definition of a "group practice" becomes evident when one attempts to apply it to the second hypothetical case. The 12-physician P.C. clearly satisfies the initial group practice requirement of being legally organized. However, nowhere in Stark II is the term "member" defined. And while the 12 equal shareholders in the second hypothetical case probably are members of the group practice regardless of how the term is interpreted, what if the P.C. employed other physicians? Would these physicians be members of the group practice? The statute does not resolve this issue.

The statute also fails to quantify "substantially the full range" of one's services, which is the first group practice requirement aimed at ensuring that all of the physicians deliver the full scope of their services through the group. Furthermore, we must look to the Stark I proposed clinical laboratory regulations to learn that "substantially all of the services" of the group in the second requirement is interpreted to mean that 85% of the group's aggregate services must be billed by the group practice. Additionally, over what period of time are physician-patient encounters measured for compliance with the fifth requirement? Notwithstanding these unanswered questions, for purposes of analyzing the hypothetical situation, we will assume that all 12 physicians provide all of their services through the P.C. so that each of the five requirements of the "group practice" definition is satisfied and that the provider test of the in-office ancillary services exception also is satisfied.

The location test of the in-office ancillary services exception requires that the services be furnished in specified types of buildings. The services may be furnished in a building in which the group practice physicians provide physicians' services unrelated to the furnishing of the diagnostic and therapeutic services that are grouped as "designated health services" under Stark II. It is not clear from the statute how one determines whether the services are "unrelated." The services also may be furnished in a building which is used by the group practice either for the provision of at least some of the group's clinical laboratory services or for the provision of all of the group's other designated health services. In the second hypothetical situation, because clinical laboratory services are provided in offices X and Y, and all of the physical therapy services are provided in office Z, the location test is satisfied. However, if the P.C. provided a designated health service (eg, radiology) other than clinical laboratory services in either office X or Y, these services would not be centrally provided and the location test would not be satisfied.

Finally, the billing test of the in-office ancillary services exception requires that the services be billed by the physician performing or supervising the services, by the group practice under a billing number assigned to it, or by an entity that is wholly owned by the physician or the group practice. In this hypothetical case, the P.C. bills for its services under a billing number assigned to the group practice. Therefore, the billing test is satisfied and the physicians may refer Medicare- and Medicaid-eligible patients to each other under the exception for in-office ancillary services.

Note that to take advantage of the in-office ancillary services exception, as well as the exception for physicians' services, a physician must be a member of a group practice. This membership implies that the physician share economic risk with the other members of the entity and not merely relate to the entity as an employee. The requirements for a "group practice" prevent physicians in organizations that have not become economically and functionally integrated from making referrals to one another. As the analysis above indicates, full integration is critical to qualifying for these group practice exemptions.

Conclusion

Effective 1 January 1995, Stark II expands the prohibition on referrals for clinical laboratory services to a prohibition on referrals for 10 additional "designated health services." Physicians and their financial advisors should review the physicians' current financial and referral relationships in light of Stark II's prohibitions and exceptions in order to determine whether a restructure of these relationships is necessary.* The two hypothetical situations analyzed in this article demonstrate that Stark II reviews can be difficult due to the absence of implementing regulations which would interpret the vague and imprecise statutory language.

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*The Office of the Inspector General ("HCFA") have indicated that Stark II will be enforced despite requests by the Association and other organizations for a moratorium on enforcement until final implementing regulations are published. The OIG and HCFA say that their current enforcement of Stark II will rely on the language of regulations implementing Stark I.

Medicine on Stage in the Gilbert and Sullivan Operas

MARTIN DUKE, M.D.

BETWEEN 1871 and 1896, Arthur Sullivan, composer (1842-1900), and William Schwenck Gilbert, humorist, poet, and librettist (1836-1911), collaborated on 14 comic operas.[1] Since then, the light hearted and enjoyable melodies from *Gilbert* and *Sullivan* favorites such as *H.M.S. Pinafore*, *The Pirates of Penzance*, and *The Mikado*, have consistently provided pleasure whenever they are performed, and lines such as "I never use a big, big D...., hardly ever" *(H.M.S. Pinafore)*, "a policeman's lot is not a happy one" *(The Pirates of Penzance)*, and "a Darwinian Man, though well-behaved, at best is only a monkey shaved" *(Princess Ida)*, have never ceased to produce appropriate reactions.

Gilbert, called by Walter Sichel the English Aristophanes,[2] explained his craft through the words of one of his characters, Jack Point, the jester in *The Yeomen of the Guard:*

I've jibe and joke
And quip and crank
For lowly folk
And men of rank.
I ply my craft
And know no fear,
But aim my shaft
At prince or peer.

And so Gilbert did, bending his literary bow and aiming his pointed lampoons at attorneys and judges, the clergy, royalty, politicians, the army and navy, poets, and to a more limited extent, the medical profession. Indeed, all society, all English institutions, and all nations, were fair game for his comments and wit. Gilbert, again through his spokesman Jack Point, continued with this additional description of his work:

I can teach you with a quip, if I've a mind;
I can trick you into learning with a laugh;
Oh, winnow all my folly, and you'll find
A grain or two of truth among the chaff!

The following review examines medically related text in the G and S operas. Gilbert's knowledge of and attitude towards medicine may have been shaped in part by his father, a retired naval surgeon, in part by an awareness of the painful urologic problems of his partner Arthur Sullivan, and in part by his own affliction with gout and arthritis.

Much of the medical terminology and most of the forms of treatment cited in the G and S librettos are no longer in common usage. An "electuary" *(The Yeomen of the Guard)* was a remedy sweetened with honey or syrup to form a powder, a paste, or a pill, specifically prepared to be licked. "That all can be set right with calomel" (*Patience*) alluded to the therapeutic effects of mercurous chloride, a compound too often administered in the past for its action as a purgative. Expressions such as "down in the mouth with the vapours" *(The Grand Duke)* and "suffering much from spleen and vapours" *(Ruddigore)* indicated melancholy, hypochondriasis, or periods of depression. The spleen was once considered the seat of a variety of emotions, in which sense it was used in the phrase "excite your languid spleen" *(Patience).*

"Bilious" *(The Yeomen of the Guard; Utopia, Limited)*, describes the appearance of a person with a disorder of the liver or bile ducts ie, jaundice, although other definitions of this word such as bad-tempered, disagreeable, or irritable might have been equally applicable in these works. Isaac Asimov has suggested that the term "emetical"

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(Patience), from the word "emetic," an agent that causes vomiting, represented Gilbert's humorous approach to characterizing an individual as nauseating or sickening.[3] "Jim-jams" *(The Grand Duke)*, a slang expression for delirium tremens, was most likely used in this opera only to indicate the jitters or extreme nervousness.

The only physician favored by name in the G and S operas was Sir James Paget (1814-99), an eminent surgeon and pathologist at St. Bartholomew's Hospital, who is best remembered for his eponymous descriptions of diseases of the breast and bone. The phrase, "coolness of Paget about to trepan" *(Patience)*, referred to the performance by Paget of an operation in which an opening is made in the skull in order to relieve pressure upon the brain.

False or questionable advertising in medicine usually depends for its success upon a gullible, occasionally frightened, sometimes confused, and at times narcissistic public, and a self-serving, shrewd, and manipulative entrepreneur who taps into these characteristics for personal gain. No era in medicine has been exempt from such practices, and, although the specific form taken has varied through the years, the process has remained similar—individuals such as the Duke and Duchess of Plaza-Toro *(The Gondoliers)* who for a fee will

... write letters blatant
On medicines patent—
And use any other you mustn't.

Familiar to all are the modern counterparts of the above on radio and television and in publications and health stores, promoting unproven remedies for cancer, heart disease, and arthritis, and extolling techniques for hair growth, plastic surgery, weight reduction, longevity, and restoration of youth and sexual prowess. Gilbert's tongue-in-cheek response (or was it truly tongue-in-cheek?) to such claims appeared in *The Mikado:*

The advertising quack who wearies
With tales of countless cures,
His teeth, I've enacted,
Shall all be extracted
By terrified amateurs.

The association between alcohol ingestion and gout, described by the well-known seventeenth century physician Thomas Sydenham, was similarly noted by Gilbert in *The Gondoliers:*

A taste for drink combined with gout,
Had doubled him up forever.

Other comments in the operas about the medical profession included the following:

1. The tendency of physicians, when talking, to be garrulous and confusing, a common complaint of patients to this day—"Doctor mumbles like a dumb thing" (*Utopia, Limited*);
2. Victorian prejudices about woman physicians who are reluctant to "cut off real live legs and arms," who "wouldn't do it for a thousand pounds," and who are asked in a demeaning fashion, "are you faint-hearted, girl?" *(Princess Ida)*, biases that unfortunately still surface;
3. And the humorous yet interesting observation describing what might happen to physicians if public health policies were truly effective and as a result ill-health occurred less frequently *(Utopia, Limited)*:

Your County Councillor
Has passed such drastic Sanitary laws
That all the doctors dwindle, starve, and die!

It is apparent that references to the medical profession in the 14 Gilbert and Sullivan operas were few, and when present, usually consisted of an incidental word, a phrase, or a limited remark or statement. In view of the wide range of subjects covered by Gilbert in his librettos, this relative sparseness of medical material is somewhat surprising. Physicians of the Victorian era, however, were probably thankful—Gilbert's notorious biting wit and sarcasm would have humbled and embarrassed many.

Gilbert had the ability, background, and opportunity to write about medicine in these texts. That he did so in only a limited way may have reflected his opinion that this subject was too personal, too sensitive, too serious, and perhaps too difficult for the format of a comic opera. It may also have been his concern as both a dramatist and a practical business man that medically related material presented in depth for the theater would not be received by audiences with the same enthusiasm shown for other targets of his wit and humor. Such explanations, perforce, can only be conjectural.

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Futile Medical Care

BARBARA A. FREDERICK

Good ethics (and a good ethics committee)
begins where the law ends.[1]

Introduction

WHEN octogenarian Helga Wanglie slipped on a rug and fractured her hip, there was little reason to anticipate the attention her case would receive in both the medical and legal literature. While convalescing, Mrs. Wanglie contracted a series of respiratory infections that left her ventilator-dependent. Attempts to wean her from the respirator failed, and a subsequent cardiopulmonary arrest left her with severe irreversible brain damage, in a persistent vegetative state (PVS), and in need of nasogastric feeding as well as mechanical ventilation. Mrs. Wanglie's physicians then decided that continuing aggressive life-sustaining interventions would be nonbeneficial and medically inappropriate. Although Mrs. Wanglie's husband Oliver did not dispute the medical prognosis, he argued that the physicians' assessment of the value of preserving Mrs. Wanglie's PVS life was inconsistent with her personal and religious beliefs. He, therefore, agreed to entry of a DNR (Do Not Resuscitate) order but refused to consent to withdrawal of the respirator. After efforts to arrange for alternative care for Mrs. Wanglie were unavailing, Dr. Stephen Miles, a physician affiliated with Hennepin County Medical Center, petitioned a Minnesota state court to appoint an independent conservator for Mrs. Wanglie, in the hope that he would agree with the physicians' proposal to remove the respirator. The *Wanglie* case brought to the fore the issue of whether (and under what circumstances) health-care providers should be able unilaterally to deny life-sustaining treatment to patients for whom, in their view, such treatment would be futile.[2,3,4,5]

This essay discusses the bioethical, professional, and legal aspects of end-of-life decision making. It begins with an examination of the principles that bioethicists rely on to distinguish between obligatory and optional treatments: respect for autonomy, beneficence, and nonmaleficence. Next, it discusses the futile-care proposals of several medical practitioners and examines how those policies relate to Mrs. Wanglie's case. Finally, it explores criminal and civil law issues involved in a health-care provider's decision unilaterally to withhold life-sustaining treatment.

The essay concludes that with respect to futility of life-sustaining treatment, the no-yield/low-yield (Macklin) distinction is an important one. Because a determination to withhold no-yield intervention involves a judgment that *treatment* is futile, it is ethically, professionally, and legally permissible for a physician unilaterally to deny such care. However, a determination to withhold low-yield intervention without or against patient consent is both ethically impermissible and legally dangerous. Because low-yield treatment may be, by definition, efficacious, judgments about the futility of such treatment are really determinations about the futility of the *life* the treatment would support. Because that question must be resolved from the patient's, rather than the physician's, perspective, withholding low-yield treatment without informed consent is not ethically permissible. Moreover, a physician who withholds low-yield treatment without or against the patient's consent exposes herself to significant risk of litigation. It is not at all certain that the physician

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would prevail in such a case, and the emotional, financial, and time costs of mounting even a successful defense to homicide, medical malpractice, or abandonment charges could be enormous. Hence, even a physician who does not recognize a moral or professional obligation to provide patient-requested low-yield life support is well advised to comply with the patient's wishes or transfer care to another physician.

Ethical Aspects of Medical Decisions

The dominant paradigm for bioethical analysis is the principle-based, common morality theory of philosophers Tom Beauchamp and James Childress.[6] Unlike monistic theories, which rely on a single overarching principle to justify obligations and adjudicate conflicts, Beauchamp and Childress's theory is pluralistic. It sets forth not one, but four guiding principles: respect for autonomy, beneficence, nonmaleficence, and justice. Each of the four is drawn from the common morality; each, while nonabsolute, is considered *prima facie* binding; none are accorded primacy over the others. Taken together, they provide both the starting point and a framework for moral medical decision making. With respect to futile-care decisions, respect for autonomy, beneficence, and nonmaleficence are particularly important.

Respect for Autonomy.—Beauchamp and Childress articulate two essential characteristics of personal autonomy: (1) freedom from controlling interferences of others; and (2) freedom from personal limitations that prevent meaningful choice. In their view, respect for autonomy requires more than acknowledgment of a person's rights to hold views and to make choices and take actions based on personal values and beliefs. It imposes not only a negative obligation of nonintervention but also an affirmative duty to treat others in a way that enables them to act autonomously. Thus, because it obligates physicians "to disclose information, to probe for and ensure understanding and voluntariness, and to foster adequate decision making,"[6(127)] the principle of respect for autonomy determines the ethical as well as legal parameters of informed consent policies.

The dominant legal paradigm of informed consent requires physicians to disclose to their patients a core set of material information: (1) the nature and purpose of a proposed intervention; (2) the risks and benefits of the proposed treatment; (3) the risks of nontreatment; and (4) reasonable alternative interventions.[7] As Macklin points out, with respect to life-sustaining treatment, the qualifier "reasonable" is particularly significant. Because physicians are legally bound to disclose not all conceivable alternative treatments but only those deemed reasonable, informed consent is an asymmetrical doctrine in that it stops short of granting patients the right to demand any treatment they themselves consider appropriate.[4]

Beauchamp and Childress argue that the principle of respect for autonomy morally obligates physicians to go beyond the legal reasonable-person standard of disclosure. That standard is an objective one; it requires physicians to disclose only those alternative treatments a reasonable person would consider material.[7] In Beauchamp and Childress's view, such a standard is an insufficient gauge of adequacy of disclosure because it often fails to take into account some or all of the information material to the person making the decision. Thus, if a physician knows or has reason to believe that a patient would want information about life-sustaining treatment, they argue that the principle of respect for autonomy may impose a *prima facie* ethical obligation to discuss and obtain consent before withholding or withdrawing such treatment, regardless of the physician's belief that such treatment would be pointless.

Nonmaleficence and Beneficence.—Beauchamp and Childress's second and third principles, nonmaleficence and beneficence, have both long been considered integral to good medical practice. In the Hippocratic Oath physicians pledge to "come for the benefit of the sick," to use treatment "for the benefit of the sick according to [their] ability and judgment," and to "keep patients from harm...."[8,6(269)]

The principle of beneficence asserts a duty to help others further their important and legitimate interests, while the principle of nonmaleficence imposes an obligation not to inflict harm intentionally. While beneficence creates a three-fold positive duty to prevent harm, remove harm, and promote good, nonmaleficence imposes a negative duty to refrain from inflicting harm. The principle of nonmaleficence requires moral justification (ie, the prospect of a greater good ensuing) for all actions that intentionally cause harm. Hence, Beauchamp and Childress argue that taken together, the principles of nonmaleficence and beneficence establish a presumption in favor of providing life-sustaining treatment.

The Relationship of Autonomy to Beneficence and Nonmaleficence.—While in Beauchamp and Childress's theory of common morality, no one principle is absolute, the principles are not entirely relative; each, instead, is considered *prima facie* binding. Thus, the principle of respect for autonomy supplements rather than supplants the principles of beneficence and nonmaleficence.

With respect to life-sustaining treatments, Beauchamp and Childress reject the use of the traditional distinction between ordinary and extraordinary interventions and argue instead for the use of three categories of treatment: obligatory, optional, and wrong. Their criteria for distinguishing among those categories derive not only from the patient's wishes (a consideration of respect for autonomy), but also from the patient's best interests (considerations of beneficence and nonmaleficence). Thus, the presumption in favor of providing life-sustaining treatment is not irrebuttable. Such treatment is not obligatory when it offers no prospect of benefit to patient because it is futile.

When Is Treatment Futile?—While ethicists generally agree that physicians have no moral obligation to provide "futile" care,[4] the term is ambiguous and there is no general agreement about when treatment is futile. Beauchamp and Childress identify three sorts of medical intervention that are often labeled futile: 1. treatment that cannot provide physiological benefit or is hopeless; 2. treatment that is highly unlikely to be efficacious; and 3. treatment that is virtually certain to produce a low-grade outcome. (The authors also briefly discuss interventions in which the burdens are expected to outweigh the benefits. The use of burden-benefit analysis, which is based on the principles of beneficence and nonmaleficence, is legitimate only if conducted from the patient's point of view. This essay does not distinguish between nonpatient-centered burden-benefit analyses and other low-yield approaches.) While there is consensus that physicians are not obligated to discuss or provide treatment of the first sort (no-yield), denial of the second and third types of intervention (low-yield) is controversial.

1. No-Yield Intervention.—At one end of the "futility" spectrum are the easy cases—those involving "no-yield" interventions. No-yield interventions are those that cannot produce the desired physiological benefit or are hopeless. Veatch and Spicer's[9] example of a dead patient who last respired three hours earlier would fit into this category, as would an irreversibly dying patient whose physiological condition has deteriorated to the point that her blood pressure cannot be maintained despite maximal therapy. In both cases, cardiopulmonary resuscitation would be futile: it could not possibly restore respiration in the first case, while if it did restore respiration in the second case, the patient would surely arrest again. There is virtually universal agreement with Beauchamp and Childress's position that in this narrow set of cases in which treatment has *no chance* of being efficacious, intervention is not morally required.

2. Low-Yield Intervention.—The more difficult cases are those in which treatment will produce an effect and although the patient (or her surrogate) deems the treatment worthwhile, the physician does not. Those sorts of cases generally involve one of two types of interventions: first, those for which the odds of success are extremely small and second, those in which a low-grade outcome is virtually certain.

Cases of the first sort involve a quantitative assessment of the probability of success, while those of the second type involve a qualitative assessment of the value of life. In both sorts of low-yield cases, "futility" involves not only scientific judgments but also value judgments about whether treatment is worth the effort. Beauchamp and Childress argue that while treatment that has no chance of being efficacious is either morally wrong or optional, other putatively futile intervention is often morally required. Macklin goes even further and argues that it is "illicit" to stretch the concept of futility beyond the narrow no-yield meaning.[4] Not surprisingly, bioethicists have not been the only participants in the debate over the meaning of futility. The concept has also engendered considerable controversy in the medical community.

The Medical Proposals

In the medical community, disagreement over the meaning of the term "medically futile" is as widespread as the consensus that physicians have no duty to provide such treatment. The proposed definitions of medical futility generally fall into one of the three categories discussed above: (1) there are physiologically-based definitions like those of the Hastings Center and the American Thoracic Society; (2) there are physician-centered qualitative policies, such as those of Santa Monica Hospital and UCLA Medical Center; and (3) there are mixed qualitative/quantitative definitions such as that of Schneiderman and Jecker. While the first sort of definition is based on a nonefficacious concept of futility, the second and third sorts include treatments that are of "limited short term efficacy."[4] For patients like Helga Wanglie that distinction between no-yield and low-yield intervention literally can be a matter of life and death.

The No-Yield Proposals.—The Hastings Center advocates the use of a narrow or no-yield definition of futility that incorporates Beauchamp and Childress's presumption in favor of providing life-sustaining treatment:

> In the event that the patient ... requests a treatment that the responsible health care professional regards as clearly futile in achieving its physiological objective and so offering no physiological benefit to the patient, the professional has no obligation to provide it. However, the health care professional's value judgment that although a treatment will produce physiological benefit, the benefit is not sufficient to warrant the treatment, should not be used as a basis for determining a treatment to be futile.[10, 4(173)]

This proposal recognizes that when faced with physiological impossibility or an absolute inability to postpone death, physicians may ethically refuse requests for all life-sustaining interventions. In addition, it acknowledges that other interventions, even those that will have only a minimal effect, may only be declared futile relative to the values of the particular patient. Helga Wanglie's physicians' objection to continuing ventilator support was based on *their* view that such treatment would be nonbeneficial,[5] and hence, had this policy been in effect at Hennepin County Hospital, the hospital most likely would not have opposed continuation of treatment.

The American Thoracic Society (ATS) definition of futility is broader than that of the Hastings Center in that it does not fully incorporate the presumption in favor of providing life-sustaining treatment. Like the Hastings Center, the ATS takes the position that a proposed treatment is futile if it lacks physiological efficacy as judged from the physician's perspective.[11] In addition, treatment that will not lead to meaningful survival, as judged by the patient's personal values, is considered futile. Meaningful survival is defined as a quality and duration of additional life that would have value to the patient as an individual, with the rebuttable presumption that survival in a permanent coma has no value. Mrs. Wanglie's statement that "if anything happened to her, so that she could not take care of herself, she did not want anybody to do anything that would shorten her life"[4(177)] is evidence that she attached value to even profoundly diminished life. Thus, had the ATS policy been in effect at Hennepin County Hospital, the hospital most likely would not have opposed continuation of treatment.

Low-Yield Proposals: Physician-Centered Qualitative Definitions.—The policies of Santa Monica Hospital and UCLA explicitly reject a universal presumption in favor of providing life-sustaining treatment. Santa Monica Hospital Medical Center defines futile care as "[a]ny clinical circumstance in which the doctor and his consultants, consistent with the available medical literature, conclude that further treatment (except comfort care) cannot, within a reasonable possibility, cure, ameliorate, improve or restore a quality of life that would be satisfactory to the patient."[12(28)] The hospital's policy goes on to list irreversible coma, persistent vegetative state (PVS), permanent dependence on ICU care, and terminal illness in which the application of life-sustaining procedures would serve only to artificially delay the moment of death as examples of situations in which treatment is appropriately deemed futile. In addition, the policy explicitly states that once certain procedural requirements have been met, neither doctors nor the hospital is required to provide such care and that, should a patient insist on remaining in the hospital for such care, mechanisms for personal payment can be invoked.

Similarly, the UCLA Medical Center futile-care policy states that:

> *[m]edically appropriate* life-sustaining treatment shall be provided to any patient ...who requests it. A treatment that is medically appropriate is one that has a reasonable possibility of reaching any goal of medicine including prolongation of life that is *currently* meaningful for the patient, restoration of function, relief of pain and suffering.... Recognizing a distinction between medically appropriate and medically inappropriate treatment means that some patients or surrogates will not be offered treatment they may want. For example, once a medical judgment has been made that a patient is permanently unconscious, no further medical treatment would be offered because it could not be currently (or in the future) meaningful to the patient.[13(44-45)]

Because the policies of both institutions incorporate a conclusive presumption against sustaining permanently unconscious life, had either policy been in effect at Hennepin County Hospital, the hospital would likely have opposed continuation of Mrs. Wanglie's treatment. In addition, if Hennepin had adopted the Santa Monica policy, rather than seeking the assistance of the courts, the hospital presumably would have attempted to coerce the Wanglie family into "consent" by invoking personal payment mechanisms designed to deny insurance coverage.

Low-Yield Proposals: Quantitative Definitions.—Schneiderman and Jecker advocate the use of quantitative as well as qualitative criteria for distinguishing futile care.[14] In their view, if a physician concludes, based either on personal experience, shared experiences, or published empirical data, that a proposed treatment has been useless in the last 100 similar cases, it is quantitatively futile and may be unilaterally denied. Similarly, if a proposed treatment will merely preserve permanent unconsciousness or cannot end dependence on intensive medical intervention, even if it has some physiologic effect on the body, in their view it is qualitatively futile and may be unilaterally denied. Hence, had this proposal been in force at Hennepin County Hospital, the hospital would have opposed continuation of Mrs. Wanglie's treatment.

When the term "futility" is used in the narrow no-yield sense, it engenders little, if any, debate. However, when the concept is broadened to encompass low-yield medical treatment as in the Santa Monica, UCLA, and Schneiderman proposals, it is the subject of great controversy. On a theoretical level, the debate about whether physicians ethically may unilaterally deny such low-yield life-sustaining treatment essentially reduces to an intractable dispute over the value of life in general and of profoundly diminished life in particular.[15] At one pole of the debate are those Morreim describes as "vitalists"—those for whom all human life is fully valuable. At the other pole are those she describes as "qualitists" —those who believe that under some conditions (eg, PVS) life is no longer of value to the person and that hence, he or she would be better off, or at least no worse off, dead. On a practical level, however, the debate is simply about who gets to assess the value of a particular patient's life. Susan Wolf, who aptly characterizes the futility dispute as a turf battle between the medical profession and patients or surrogates, argues that only patients or surrogates may judge the value of an anticipated quality or duration of additional life.[16] In support of that argument, Felicia Ackerman uses a powerful analogy to illustrate the inappropriateness of unilateral low-yield policies. While physicians may be those best able to frame choices by describing prognosis and expected quality of life,[17] in Ackerman's view it is

> as presumptuous and *ethically* inappropriate for [them] to suppose that their professional expertise qualifies them to know what kind of life is worth prolonging as it would be for meteorologists to suppose their professional expertise qualifies them to know what kind of destination is worth a long drive in the rain.[18(27)]

Ethical concerns, however, are not the only factors that properly influence a physician's decision whether to withhold life-sustaining treatment without patient consent. While the law on this issue is far from settled, arguments can be made that physicians who make such decisions expose themselves to risk of both criminal and civil liability.

The Law

Although Oliver Wanglie's refusal to consent to withdrawal of his wife's ventilator brought the futile-care issue to the fore, the W*anglie* case did not shed any legal light on the question. While the litigation was generally perceived as an attempt to obtain court permission to terminate life-sustaining treatment over the objections of a patient's family,[5] Dr. Miles's petition simply asked the court to determine who should direct the course of Mrs. Wanglie's care. Thus, the *Wanglie* court did not address the issue of whether and under what circumstances a physician may legally unilaterally deny a patient life-sustaining treatment that is deemed to be futile but instead confined its attention to the narrow question of who could best represent Mrs. Wanglie's interests. Noting that Oliver Wanglie was the person most "suitable and best qualified" to represent Mrs. Wanglie's interests, the court denied Dr. Miles's request for an independent conservator.[2] Mrs. Wanglie died of "natural causes" just three days after the court decision.[5]

A patient, even a terminally ill patient, does not have either a common-law or a constitutionally-protected right of access to medical treatment. Although the right to refuse life-sustaining treatment has been accorded judicial recognition,[19] that right is distinct from the right to receive medical treatment. Like the abortion right,[20] the right to refuse life-sustaining treatment is a negative right; the right to health care, on the other hand, is a positive one. Hence, just as although the state cannot unduly burden a woman's right to seek an abortion,[21] it has no obligation to ensure access to one,[22] while a state may not unduly burden a patient's right to refuse life-sustaining treatment,[23] it has no nonstatutory duty to ensure access to such health care. That is not to say, however, that the law is completely bereft of guidance on the question of futile care. The no-yield/low-yield distinction is an important line for physicians as well as patients like Helga Wanglie. While the risk of legal liability is extremely low for a physician who unilaterally withholds no-yield life-sustaining treatment, a physician who unilaterally denies a patient low-yield life-sustaining treatment puts herself in legal jeopardy.

Denial of No-Yield Treatment.—The risk of legal liability for unilateral denial of no-yield life-sustaining treatment is extremely low. In both the civil and the criminal contexts, inability to prove causation is a virtually insurmountable obstacle to a finding of liability because provision of such treatment would provide absolutely no physiological benefit and would not sustain the patient's life. Kapp reports that the Optimum Care Committee of the Massachusetts General Hospital has, in fact, made unilateral decisions predicated on a no-yield definition of medical futility for several years without any adverse legal consequences.[11]

Denial of Low-Yield Treatment.—Unlike a physician who withholds no-yield intervention, a physician who unilaterally denies a patient low-yield life-sustaining treatment risks legal liability for homicide, medical malpractice, and abandonment.

1. Homicide.—A physician who unilaterally refuses low-yield life-sustaining treatment risks homicide charges. As Morreim points out,[15] it is not certain how a court confronted with a patient (victim?) who died not only earlier than he otherwise might have, but also against his wishes, would resolve the issue of causation. While in cases of patient refusal of life-sustaining treatment, courts have been careful to characterize death as the end result of the patient's illness or injury,[24] those characterizations have been based on the *patient's* exercise of the right to refuse unwanted treatment. In cases of unilateral denial of low-yield life-sustaining treatment, the patient either explicitly declines to exercise that right or is not consulted about the matter; it is the *physician* who makes the decision. Thus the defining principle of *Quinlan*[25] and its progeny provides no support for extending the causation exclusion carved out in patient-refusal cases to physician-refusal cases. Hence, without a statutory provision to the contrary, a physician who fails to provide such treatment either without or against the consent of the patient risks criminal prosecution.

In Connecticut the pertinent statute, the Removal of Life Support Systems Act,[26] not only fails to provide protection for physicians who unilaterally deny a patient access to low-yield life-sustaining treatment, it also implicitly supports both crininal prosecution and civil liability for such refusals.

Section 19a-571, which directly addresses liability for removal of life support from an incapacitated patient who is either terminally ill or permanently unconscious, authorizes withdrawal of life-support systems provided that the physician uses her best *medical* judgment in accordance with the usual and customary standards of practice and considers the wishes of the patient concerning the withholding or withdrawal of life-support systems.[27] While the statute pertains only to incompetent patients, it is hard to construct a credible argument that while the wishes of an incapacitated person deserve legal recognition, those of a competent patient do not.

In *McConnell v Beverly Enterprises-Connecticut, Inc.*,[28] the Connecticut Supreme Court raised but did not resolve the question of whether those provisions are not only sufficient but also necessary to immunize a physician from liability. Chief Justice Peters noted, however, that the statute is arguably the exclusive basis for such protection.

A Connecticut physician who unilaterally denies low-yield life-support treatment is not likely to qualify for that statutory protection. First, the statute specifically restricts immunity to situations in which the physician exercises her best *medical* judgment. Denial of low-yield life support is predicated not on futility of the treatment, but on futility of the life the treatment would support. In deciding to withhold or withdraw such treatment, the physician is exercising personal, rather than medical, judgment. Second, empirical studies of actual physician practice suggest that physicians usually and customarily provide such treatment[15] and hence, denial is not within the standard specified in the statute. And last, a unilateral decision, by definition, implies that the physician has acted without or against the consent of the patient. Thus, such a physician cannot entirely rule out the possibility of being prosecuted. As Morreim observes, however, a civil suit is a more realistic possibility than criminal prosecution.[15]

2. Medical Malpractice.—Cases involving lack of informed consent are generally treated as negligent, rather than as intentional, torts. Hence, a plaintiff who brings a medical malpractice action against a physician for unilateral denial of low-yield treatment bears the burden of proving each of the elements of negligence: duty, breach, causation, and harm. Although the issues of duty, causation, and harm do involve unresolved questions of law, the plaintiff in such a case could conceivably prevail on all three issues.

First, while the futility debate is evidence that the accepted-practice standard of care for patients experiencing profoundly diminished life is being challenged, it is not proof that the standard of care no longer incorporates the presumption in favor of providing life support in low-yield cases. In fact, studies of the prevailing-practice standard in cases of that sort suggest that physicians ordinarily continue to provide low-yield treatment.[15] Furthermore, attempts to solve the futility question with simple declarations that certain low-yield interventions are outside the standard of care and, hence, are not within the scope of the informed consent requirements, will not necessarily survive legal challenge. Cases such as *Helling v Carey*[29] have made it clear that courts, not medical professionals, are the final arbiters of the standard of care. In fact, it was precisely on that point that an Indiana appellate court reversed a summary judgment in favor of a physician who allegedly had failed to obtain patient consent before entering a DNR order on the patient's chart.[30]

Second, as discussed above, without patient consent, it is not clear that courts will treat the patient's disease or injury, rather than the physician's refusal to provide treatment, as the cause of death.

And third, while some may argue that prolonging life with invasive technologies is a greater harm than death, such arguments are not likely to find favor with the courts. Recent cases have demonstrated increased judicial unwillingness to make judgments about the quality of an individual's life.[31] Hence, a physician who withholds low-yield life-sustaining treatment either without or against consent puts herself at risk of liability for medical malpractice. Furthermore, simply withdrawing from the case will not solve the physician's problem; as Morreim notes, while withdrawal may preclude a malpractice suit, it may also precipitate an abandonment action.

3. Abandonment.—Once a voluntary doctor-patient relationship has been established, the physician has a duty not to abandon the patient. The general rule is that once a physician accepts a patient, she must continue to attend to the patient until one of the following occurs: (1) the relationship is terminated by mutual consent; (2) the relationship is terminated by the patient; (3) the patient no longer requires care; and (4) the physician withdraws after providing adequate notice for the patient to find another physician.[1(122)] For a physician seeking to withdraw rather than provide low-yield life-sustaining treatment, the last two conditions present significant problems. First, as Morreim points out, the patient's need for further care is the very issue in dispute: "the patient... insists that [he] needs continued maximal care because he needs to live, while the physician believes that the patient really needs a dignified and comfortable death."[15(37)] And second, there

are two problems with the usual practice of giving the patient a few weeks notice so that alternate arrangement can be made. The patient in this sort of case "can hardly go doctor shopping"[15(37)] and, as was the case with Mrs. Wanglie, there may be no other physician willing to take the patient.

While abandonment law recognizes that physicians have no duty to accede to unreasonable patient demands, a simple declaration that provision of low-yield treatment is unreasonable is unlikely to be a successful defense. Although the physician can argue that it was unreasonable for the patient to expect her to violate her conscience, the patient's argument that it was unreasonable for the physician to allow the patient to die earlier than necessary is likely to prevail.[15] Faced with the likelihood of a futile search for patient transfer, a number of courts have ordered providers to act against their convictions and comply with patient requests.[5] For example, the New Jersey Supreme Court ordered a nursing home to participate in the withdrawal of a feeding tube over the nursing home's moral objections.[32]

Thus, while the law with respect to provision of low-yield care is not yet fully developed, one thing is certain. A physician who unilaterally disregards the presumption that she will provide low-yield life-sustaining treatment puts herself in jeopardy of both criminal and civil charges and liability.

Conclusion

With respect to life-sustaining treatment, the Macklin no-yield/low-yield distinction is an important one to physicians as well as patients like Helga Wanglie. Because a determination to withhold no-yield intervention involves medical judgment that treatment is futile, it is ethically, professionally, and legally permissible for a physician unilaterally to deny such care. A unilateral determination to withhold low-yield life support, however, involves a judgment on the futility of the life such treatment would support. Reasonable people sharply disagree about the ethical, professional, and legal propriety of such decisions. Because the dispute "revolves around morally irresolvable conflicts concerning ... deeply held beliefs about the value of life,"[15] the debate is an intractable one that on a practical level simply reduces to the question of who's view on the value of profoundly diminished life should prevail, the patient's or the physician's.

As Ruth Macklin points out, broadening the meaning of futility to encompass low-yield treatment is simply a maneuver designed to put decision-making authority in the hands of the physician.[4] In my view, it is ethically wrong as well as legally dangerous for physicians to cloak such quality of life determinations with the mask of futility. Because low-yield treatment is by definition efficacious, taken together, the principles of respect for autonomy, beneficence, and nonmaleficence demand that the futility of such treatment must be judged from the patient's perspective, not the physician's. Moreover, a physician who unilaterally withholds low-yield treatment exposes herself to significant risk of litigation. It is not certain that the physician would prevail in such a case, and the emotional, financial, and time costs of mounting even a successful defense to homicide, medical malpractice, or abandonment charges could be enormous. Hence, even a physician who does not recognize a moral or professional obligation to provide patient-requested low-yield life support is well advised to comply with the patient's wishes or transfer care to another physician.

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(Continued on next page)

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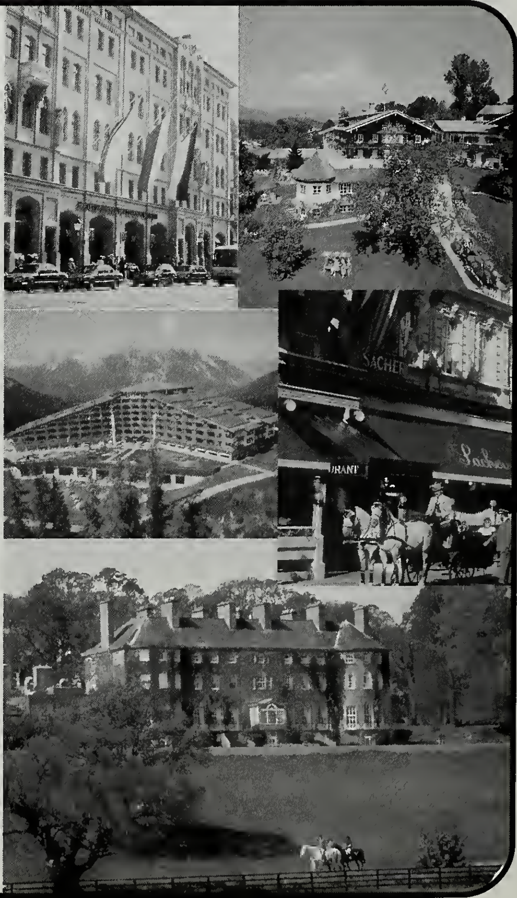

Commentaries

Seek and Ye Shall Find: Research and the Primary Care Pediatrician

MORRIS A. WESSEL, M.D

I retired in July 1993 having completed 42 years of active pediatric practice in New Haven, Connecticut. I recall many parents whose children experienced specific illnesses, problems, or stresses in their lives and who sought my help from time to time. I believe that primary practitioners with ongoing relationships with families can add greatly to our knowledge of childhood and adolescence. Indeed, I can think of few academicians or researchers who have the opportunity for so intimate and long-term a relationship with parents and children.

Experiences early in my practice aroused my interest in how children cope with losses of important persons in their lives. I also wondered how I, as a pediatrician, might be helpful to parents and children at these tragic moments. Three experiences stand out vividly in my memory.

I noted in my first few years in practice that many expectant parents became tearful during the prenatal pediatric conference as I sought information concerning their medical family history. I discovered that many of these individuals had experienced the death of a parent or significant individual during childhood or adolescence. They often recalled with tears the manner in which well-meaning family members, hoping to protect them from the sadness associated with the loss of a loved one, excluded them from the funeral and other activities.

A 27-year-old woman reminisced with tears:

> I was 8 years old when my grandmother died. I was told she went to Heaven and would never come back. I remember everyone being upset and a lot of commotion in the house. I was sent to neighbors during the funeral. When I returned home every one was crying. I felt alone and abandoned! I cried myself to sleep for weeks, burying my head under my pillow. It was years before my mother took me to the cemetery where my grandmother was buried.

A few years later, while serving as pediatrician at Katherine Brennan School in New Haven, I received a phone call from the principal informing me that Mrs. Barbara Smith, a beloved first grade teacher, had suffered a fatal heart attack in the school. He asked me to meet with the first grade children the next day hoping I could offer support as they struggled to adapt to the loss of their beloved teacher, Mrs. Smith.

The next morning I approached the classroom with a heavy heart. I began by explaining that I too shared their sadness concerning the death of their teacher. I wondered what they would like to do to help us feel a bit better at this sad moment. I suggested that we might want to draw pictures of Mrs. Smith, or tell stories about her, or listen to some music, or just sit quietly and think about the many nice things she did for all of us.

I was unprepared for their response. The children raised their hands and expressed their wishes with determination. "We must write to Mrs. Smith!" "We must go to see her." "Could we go now?" "Could we go after school?" "Would you take us in your station wagon, please?"

I struggled to withhold my tears as I searched for appropriate words to deal with their requests. Suddenly Patty, a seven-year-old girl with long black hair and bright shining eyes, spoke up. "When my dog was hit by a car last week, I found him lying by the road. He was stiff and cold. When I tried to pet him he didn't know I was there! I don't think it will do any good if we did see Mrs. Smith. She wouldn't know we were there!"

I perceived Patty's experience with her dog enabled her at the age of seven to comprehend the distinction of "being alive" and "being dead." Thanks to her articulate comment, I was able to focus the discussion on the inaccessibility of deceased individuals.

A few months later a guinea pig died in a local nursery school. A veterinarian embalmed the animal and brought the body to the school for a brief memorial service. As the

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MORRIS A. WESSEL, M.D., Clinical Professor of Pediatrics, Yale University School of Medicine, New Haven. Reprinted with permission, Morris A. Wessel, M.D., Commentary: Seek and ye shall find: Research and the primary care pediatrician, *Dev Behav Pediatri*, August 1994; 15:4:275-7.

children gathered around the animal's body, a four-year-old, Bobby, touched him commenting, "Whatever used to be inside of him can't come out any more."

These three experiences stimulated me to search the library for material that would improve my knowledge of children's understanding of losses and how I as a pediatrician might assist them at these tragic moments. I became aware that many children in my practice suffered the loss of family members, friends, or pet animals. I encouraged parents on initial visits to notify me when unusual stresses occurred in their family, particularly when a death took place. Over the years, parents did call seeking advice as to how they might support their children or adolescents at these tragic moments.

Participation in a funeral service helps a child begin the painful mourning process. It also enables a parent to respond more easily when a child asks, "When is grandpa coming back?" a parent can truthfully say, "Remember we said good-bye to him at the funeral. I am very sad too, that he won't be back. We shall have to remember all those happy days when he was here with us."

Parents often told me that even when told of the death of a loved one, and the finality of death was explained, children still commented a few days or weeks later, "Will my grandfather be back for my birthday? Or write me? Or send me a present? He always did that!"

I learned that children and adults, even if they participate in a funeral, need time to accept the reality of a loss. Mourning and "letting go" is a long and difficult process for all human beings. Children may need a much longer time than adults to accept the finality of the loss. Indeed, many children and some adults, also, may never completely accept the reality. However, as I expressed my interest to parents and children during these stressful moments, I became increasingly comfortable discussing these issues and helping parents understand and support their children.

Every physician has his or her personal interests. I believe it would be a significant contribution to our knowledge of childhood and adolescence for pediatricians with long-term relationships with families to present clinical information in their areas of interest. Often primary pediatricians tend to undervalue the importance of their knowledge and observations concerning families they serve for several decades. I shall mention a few clinical areas that could be studied easily by primary pediatricians with ongoing relationships with families.

Issues in Early Infancy

Many infants suffering discomfort and irritability improve after elimination of milk protein from the diet of the nursing mother or from the ingested formula mixture. Whether these infants suffer milk sensitivity is often unclear. A study establishing the incidence of allergic reactions among these patients in later years could provide important information as to the role of allergy in this common syndrome in early infancy.

There is another group of infants suffering discomfort and irritability who are variously described as "highly perceptive," demonstrating "paroxysmal fussiness" or possessing a "difficult temperament" or "unusual sensitivities." These babies often "sparkle" when they are feeling well! Yet at other times they are irritable and inconsolable, particularly in the late afternoon and evening. This behavior challenges the best of parents, and physicians too!

What characterizes these infants as they grow and mature? Does "stranger anxiety" occur earlier than average in these babies? Do they awaken more than other babies at night and appear to be dreaming? Are separations for day care, preschool, secondary school, preparatory school, or college difficult for these individuals? Observations of this nature could be easily recorded and later studied from the patients' records.

Advances in the Field of Infertility

The utilization of in vitro fertilization, embryonic transfer, frozen embryos, donor insemination, and participation of surrogate mothers are increasingly common among families served by pediatricians. How is this information transmitted, consciously or unconsciously to children and adolescents? How do children deal with these facts of origin? What are the most effective ways of sharing this information and at what age should this be accomplished?

Adoption

Many dramatic changes in adoption practices have occurred in the past few decades. Historically, the adoption process completely severed the relationships between child and biological parents. Communication between biological parents and adoptive parents was discouraged. Currently, there are an increasing number of open adoptions in which the biologic mother and the adoptive parents establish contact. In rare instances an adoptive mother is present at the delivery!

What do these changes in the adoptive process mean to adoptees? Do they adapt more easily to the fact of their adoption than those adoptees placed with complete separation of the adoptee from their biological parents?

There are an increasing number of adoptions by single parents and homosexual couples. Long-term studies of these placements are of utmost importance. How will these individuals manage their search for identity in adolescence and adult life?

Families of Children with Special Needs

All pediatricians serve many children with special needs. The problem may be of congenital origin such as Down syndrome, cerebral palsy, or spina bifida. A child may suffer a prolonged oncologic illness, often with long-term remissions after chemotherapy and bone marrow transplant. The sick child deservedly receives hours and hours of attention from the primary physician and colleagues with specialized skills.

Three times in my last year of practice I noted what I should have observed before—that healthy siblings often feel a sense of deprivation.

> Every time I came to your office when I was a teenager. commented a 27-year-old woman, You always asked me about my sister who had suffered severe neurologic damage following an episode of meningitis. My parents were always concerned about my sister too. I love my sister. But sometimes I wished that some one would pay attention to just me!

This is not an easy problem to overcome. However, I believe that a review of records of families with a child with a major medical problem would reveal this to be a common feeling among the siblings. A report of a few families with this experience would be of great importance. It would remind the practitioner to remember that well children also have needs that may be overlooked and they too deserve our attention.

Cyclic Abdominal Discomfort in Premenarchal Girls

Premenarchal girls often seek consultation for vague abdominal pain, usually in the lower quadrants. Physical findings are frequently minimal. Laboratory studies of urine, blood, and stools are noncontributory. These symptoms often appear to be cyclical in nature with a 28-day cycle. I wonder if these symptoms reflect cyclical alteration of hormone levels associated with swelling of the ovaries. When I have asked parents and patients to keep a calendar of the complaint, quite frequently the cyclic nature of these symptoms appear to be substantiated. A careful study of this clinical picture would contribute greatly to our understanding of bodily complaints in premenarchal girls.

I urge colleagues to identify a few clinical problems that interest them, carefully record observations, and code their records so that retrieval of groups of patients would be possible. I wish I had indexed my records so that I might now select for study children with common experiences such as those I have highlighted. The current computerization and diagnostic coding of records facilitates comparable studies in the future.

I also urge colleagues to contribute their knowledge of childhood by studying and reporting on significant experiences in their practice that attract their interest. Clinical observation of pediatric practice and issues, convincingly presented, represents scholarship in its highest form.

Sixteenth Cape Cod Institute

The sixteenth annual Cape Cod Institute will consist of a summer-long series of postgraduate courses for professionals in mental health, health science, and applied behavioral science. Topics include psychodynamic therapy, behavioral medicine, brief therapy, humanistic psychology, psychlogical assessment, neuropsychology, family therapy, childhood and adolescence, and organizational development. The program is sponsored by the Department of Psychiatry of the Albert Einstein College of Medicine.

Sessions will be held weekday mornings 26 June to 1 September 1995, from 9:00 until 12:15, leaving the afternoons free for leisure and study. Optional discussion groups and social gatherings are arranged and Institute staff members provide abundant information about activities on Cape Cod. Tuition is $425 for one program and $250 for each additional program attended. A student rate is available.

A complete course catalogue may be obtained from: Cape Cod Institute, Albert Einstein College of Medicine, 1308A Belfer Building, Bronx, NY 10461. Telephone (718) 430-2307; Fax (718) 430-8780.

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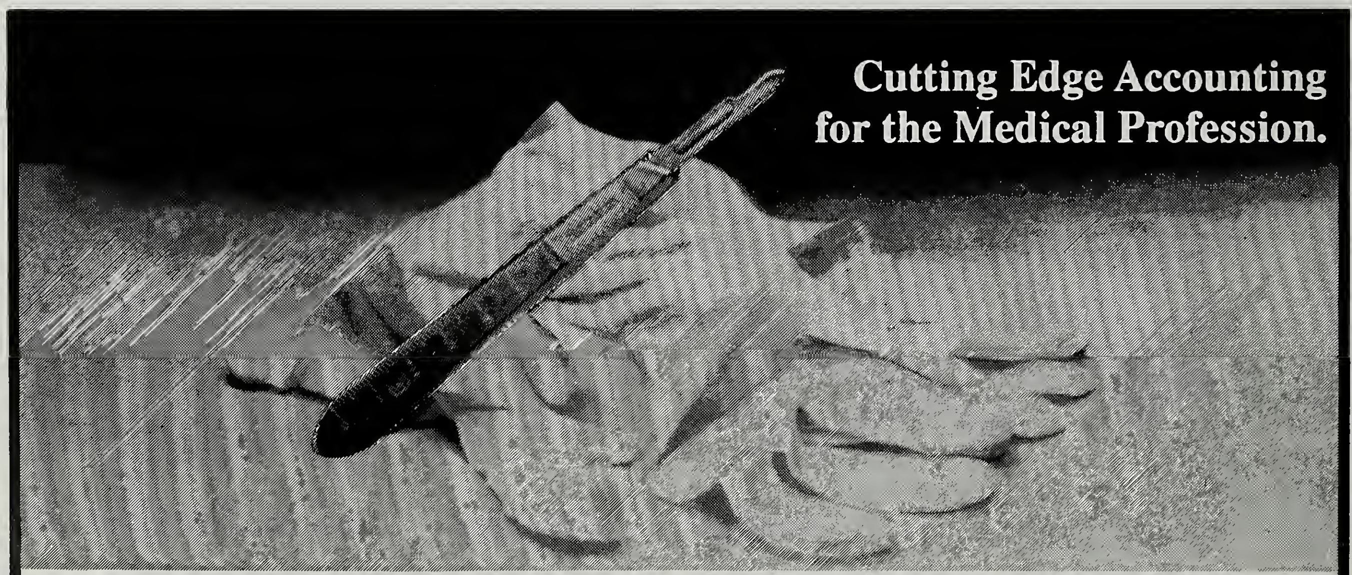

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What's Missing in Our Definitions of Primary Care?

EDWARD J. VOLPINTESTA, M.D.

RESPECT and credibility still elude primary care in spite of the predictions made by medical educators and managed-care experts.

Part of the reason for this may be in the way primary care is defined. Many of the definitions which appear in our literature portray primary care in a role so broad that they may actually be straining its credibility. For example, some of them suggest that primary-care physicians should be skilled in the subspecialties in primary, secondary, and tertiary care: in the office, on the hospital ward, in the ICU, in the nursing home, and on house calls.

These definitions are appealing because they seem to offer a quick fix for many of the problems that exist in the delivery of health care. They also appeal to our pride and to our competitive natures. I suspect that they sit well with many leaders of managed care who look at primary care as a means to moderate health-care costs.

But, these ambitious definitions which deploy the primary-care doctor over almost the entire playing field of medicine are out of touch with the rank and file. They do not take into account the fact that of the few individuals who do possess the extraordinary combination of intellect, stamina, and emotional energy to deploy themselves effectively on so many different fronts, there are fewer still who can or desire to keep up the pace for the full length of their careers.

What this means is that as the definition makers "talk the talk" they had better be sure that primary-care doctors can indeed "walk the walk." To achieve this it would be helpful if they tempered their enthusiasm with more research into the exigencies and human limitations that inform primary care.

Sir William Osler, teacher and medical philosopher, was well aware of the difficulties of general practice and said so in his valedictory address at McGill University in 1905. He commented upon how general practitioners became the "slaves of the public" because of the "incessant demands" which patients place upon them. If he were to comment upon primary care today he would probably say that the complexity of modern medicine, the specter of malpractice litigation, and the often unrealistic expectations of many patients had all conspired only to reinforce his original observations.

Another drawback in our definitions of primary care is that they do not emphasize that diversity of practice styles is one of its chief characteristics.

For example, cardiologists interact with patients in one or possibly two different areas of care, and they act out of a complex knowledge base that is narrow and focused. Consequently, their opportunities for diversity are minimized and their practices are equally narrow and focused.

On the other side, primary-care doctors interact with patients in many different areas and their knowledge base is broad. Their opportunity for diversity of practice styles is maximized. It is shaped by such factors as the nature of the community, be it rural, urban, or suburban, and the availability of specialist care. The possibilities are great, for example: some do much office surgery, some none at all; some have a preference for cardiac or pulmonary or other diseases; some deliver babies, some set bones, some do endoscopy; some practice pediatrics; others only treat

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EDWARD J. VOLPINTESTA, M.D., family physician, Bethel Medical Group, P.C., Bethel.

adults; some practice lots of gynecology, others none. And add to all of this the different thresholds for consultation and it becomes even clearer that diversity of practice styles is a defining characteristic of primary care.

Of all the different choices open to primary-care doctors the most incisive and, thus the one that most deserves special attention, is whether or not they choose to care for hospitalized patients. This specific differentiation stands alone. It is a marked shift in the way primary care identifies itself. And, more than any other, it profoundly affects not only patients and primary care doctors; but specialists and hospital administrators as well.

Some practicing physicians feel that it is reasonable to delegate some or all of their hospital patients' care since most of the critical decisions in their care are made by specialists; this frees up more time for outpatient work and continuing medical education. The concept is not new, but the motivation is. In the past, for example, senior members of the medical staff for reasons of health or advancing age often delegated their hospital patients to specialists and still remained effective personal physicians. Some managed-care organizations already employ primary-care doctors solely in an ambulatory care capacity. The effects upon patient care of this approach need to be studied.

Theoretical purists of primary care may consider this, or any limitation on primary care, as an impoverishment. It need not be. A small but growing number of practicing physicians see this as a reasonable and inevitable adaption to the realities of modern medicine. Of course, physicians' aptitudes, desires for a particular style of life, and motivation for economic gain, all play a part in their decisions about the way they will practice medicine.

In addition to these pragmatic considerations, there are also political ones that should stimulate the definition makers to reexamine the consequences of their statements. Specifically, most of the definitions are being published in peer-reviewed journals. As such, they are often perceived as official pronouncements. Some managed-care organizations refer to them to justify their relationships with both specialists and primary care doctors. The importance of this is overlooked, even though these organizations are increasingly controlling the professional and economic futures of physicians.

It should be clear by now that the economic imperative in medicine is here to stay. One could safely say that economics, more than any other force, has become the great mobilizer of primary care. Even more importantly, it has become the great rationalizer for its embarrassing inconsistencies such as incentives not to treat and not to refer to specialists. Maybe this is why primary-care doctors are more often coerced than persuaded into accepting their new roles.

At stake here is the integrity of primary care. Those who practice the business of medicine have a lot less at stake then those of us who practice its art and science. What happens, for example, when managed-care experts decide that nurse practitioners and physician assistants can do the job adequately and cheaper than physicians? This is a real possibility because as the practice of medicine is transformed inexorably into a commodity, the bottom line will depend upon who can deliver it at the lowest cost.

The final word on primary care is not in yet. Fortunately, definitions are still evolving. For example, the Institute of Medicine is working on one to be released this year. It will surely be used to influence policy makers at all levels of health care. Let's hope it's a good one.

It will be if its authors recognize why different practice styles are essential to different conditions and, why innovation at the local level is the best way to protect and preserve them.

Creating a role too broad for primary care detracts from its credibility; creating a role too narrow detracts from its respect; yet nothing less than its credibility and respect depend upon the manner in which this dilemma is resolved.

Hayward Appointed to American Diabetes Association Board

Douglas A. Hayward, President and CEO of M.D. Health Plan, has been appointed to the Board of Directors of the American Diabetes Association, Connecticut Affiliate.

The Association is the nation's leading voluntary health organization supporting reseach to find a preventative and cure for diabetes, providing information and support to millions who have the disease and educating health professionals and the general public about the seriousness of this chronic disease. The three State chapters raised over $1,698,000 in 1994, an increase of 8% over 1993. They also provided helpful answers and accurate information to 70,000 individuals who contacted them during the year.

M.D. Health Plan is a subsidiary of M.D. Enterprises of Connecticut based in North Haven, and is the third largest health maintenance organization (HMO) in the state with 129,500 members.

50 Years Ago

From *The Connecticut State Medical Journal*

March 1945

A Plan for the Medical Indigent

JAMES R. MILLER, M.D., Hartford

IT has been suggested in some quarters that organized medicine is without a program and while it is evident that "Social Planners" are not satisfied with the suggestions which have come from organized medicine, there is still a strong case in favor of building on what we have found to be reasonably satisfactory and at the same time experimenting with some of the newer techniques of providing medical care.

It is indeed doubtful whether the "Social Planners" will be satisfied with anything short of a revolution. Hayek in his recent book "The Road to Serfdom" has pointed out that "the question is no longer how we can make the best use of the spontaneous forces found in a free society. We have in effect undertaken to dispense with the forces which produced unforseen results and to replace the impersonal and anonymous mechanisms of the market by collective and "conscious' direction of all social forces to deliberately chosen goals."

The arguments for the extension of government control over medical care may be considered under two headings: those concerned with preventive medicine and those concerned with curative medicine. But recognizing that the line between these cannot be sharply drawn, it can be stated that organized medicine believes in the development to the limit of their usefulness of methods of preventive medicine and is enthusiastically in favor of a Nation Department of Health. Provisions for such a department of health have been made in H. R. 1391 introduced into the present Congress by Representative Miller of Nebraska. In the field of curative medicine, however, there is a difference of opinion. law. The "Social Planners" have faith in the ability of government to direct and control a system of distributing the medical care while organized medicine doubts that a high quality of medical care can be maintained under this pattern.

There is a strong and natural desire to provide medical care for those who cannot afford to purchase it but the average citizen is apt to forget that society has already accepted the duty of providing the indigent with medical care along with food, clothing, and shelter. If the needs of this group are not adequately met, it is the fault of organized society and not of organized medicine, for the medical care of a large portion of it is already given without charge by the medical profession. It is precisely in this area that there is room for improvement in care as well as compensation.

It is not within the scope of this paper to propose a broad plan for the health of the nation. The suggestions which are here offered are concerned with the methods of providing care to the "medical indigents." These are defined as individuals who do not need public assistance to pay for the expenses of ordinary sickness but who are unable to meet the expense of major illness without great hardship.

Nicholas Murray Butler once remarked, "the man with a plan, however much we may dislike it, has a vast advantage over the group sauntering down the roadway of life complaining of the economic weather and wondering when the rain is going to stop."

Reprinted from the *Connecticut State Medical Journal*, March 1945; and had been presented at the Lions Club, Hartford, Connecticut, February 1, 1945.

The Plan

1. That medical indigency should be defined by law.

2. That the costs of illness above a level to be determined should be met by tax funds in the case of medical indigents who meet the following requirements:

(a) The individual and his family should be covered by insurance against the costs of hospitalization and medical care in a manner and to a degree satisfactory to the administering state agency.

(b) The individual should present evidence that the costs of illness in any one year for his family have exceeded five per cent of the family income over and above the benefits received from insurance. The costs of illness should be calculated on the basis of hospital rates and of fee schedules which prevail in the insurance coverage.

3. Payment by the State should be made directly to the creditors and should protect the individual and his family from further obligation for these services.

4. Payments on behalf of the individual and his family should be made without prejudice but with the expectation of repayment. It is suggested that no interest should be charged if repayment is made within five years, thereafter a rate of interest to be determined should be charged and unpaid loans should be a preferred claim against the estate of the individual

According to testimony given at the Pepper Committee hearings in September 1944 by Robert Lamb, representing the United Steel Workers, and based on a study of 1,000 steel worker families, it was found that in the group of families having an income of $2,000 to $3,000, 2 per cent of the families had outlays of more than $500 in a year and an additional 10 per cent had outlays of $200 to $500 in a year for medical services.

For the purposes of our consideration, even though it is a patent over-simplification of the problem, let us grant that the money laid out for medical services by these families was well spent and that it represented an answer to their medical needs. Let us further grant that the figures represent approximately the situation for the group of "medical indigents." If these assumptions have any validity, it would appear that the present types of insurance coverage for hospitalization, plus the rapidly expanding prepaid medical plans would take care of a large part of the needs of all but the two per cent of these families whose expenses ran in excess of $500 and perhaps one half of the next group who laid out $200 to $500.

Critics of the plan which I have suggested will immediately point out that conditions vary widely in various states not only in the prevalence of disease and the needs for medical care but also in the economic ability of the citizens to meet these needs Local conditions will modify the plan.

It will also be objected that the plan is merely a subsidy and leaves totally out of consideration the need for improving the quality of medical care. This is granted. It would be well, however, to bear in mind what Simmons and Sinai once remarked, "No Health Insurance law has as yet been formulated primarily as a health measure, and it is doubtful if any are being administered with health care as a dominant purpose. All were enacted to meet the problem of poverty in time of sickness, and the treatment of disease has always been secondary to the relief of poverty. All systems are not insurance but subsidies.

Experience in underwriting insurance risks of many kinds has shown that minor losses are frequent but presumably can be borne without hardship by the insured. It is expensive to cover all small claims for in the aggregate they assume large proportions. Small claims also lend themselves to abuses not only by the claimant but on the part of the whole system which finds it more expedient to settle a claim on the basis of its nuisance value and to get rid of the claim lest the cost of administration become prohibitive. On the other hand, serious losses, even though they are individually large, are infrequent and are properly the field for the application of the insurance principle.

The present plan attempts to make use of three well known features of commercial insurance.

1. The "deductible clause" or the "waiting period."
2. The reinsurance of large risks.
3. The feature of co-insurance.

The "deductible clause" or the "waiting period are devices which are used to eliminate small claims so that the premiums charged for coverage of serious losses can be kept at a low level. The analogy to reinsurance is self explanatory and the co-insurance feature recognizes the fact if the insured himself participates in some of the loss, he is more apt to guard against its occurrence.

Hospitalization insurance which is rapidly being extended to cover a large portion of the population falls short of its full capacity for social welfare in that it pays on small claims which could not possibly be regarded as a back breaking burden for most of the insured. It has been calculated that a modest payment by all patients for the first week of hospitalization would enable the funds to insure limitless hospitalization for those who need it most. This, indeed, would be a great social service. The present pattern, however, is so firmly established that there is little hope of changing it and it may also be observed that any substantial payment for use would materially reduce the attractiveness of hospitalization insurance from the sales point of view.

If insurance plans are to be conducted on a sound financial basis, it is necessary to establish limits to the amounts that will be paid, for the insurance funds themselves are not limitless. The State is supposed to be the only possessor of a bottomless purse though it must not be forgotten that the depth of the public purse is limited by the willingness of the people to pay taxes.

The plan which I have suggested will not work unless a large portion of the "medical indigents" are covered by insurance. The purchase of such insurance should therefore be encouraged by government, labor, and industry and perhaps methods should be used to make such purchase easy for any who find it difficult. Ways should be found for covering individuals who are not engaged in large industrial enterprises. Farmers, storekeepers, domestic servants, and others should be covered in town or county groups provided certain percentages of the availables take the insurance.

Those who refuse to protect themselves against the minor costs of sickness by the relatively inexpensive insurance method can still pay their own pay up to the specified 5 per cent of the family income that was suggested in the plan or if they have been unable to do this, they will be cared for by public assistance under the law as soon as their distress is great enough for them to qualify.

Some attempts to keep the individual off the public assistance rolls have been made by state hospitals for the insane and tuberculous, and by certain local welfare authorities, for government has an interest at this point. Expensive illness is one of the factors which force families to accept public assistance and if they can be kept on their own feet, much of the loan fund can be recovered. My suggestion is, therefore, to extend this practice and give it wider application.

This plan fits exactly into the requirements for an , ordered service in medicine, so well stated by Lord Dawson of Penn, "I submit that such services must be something which suits the habits of thought of our people and should evolve from what already exists." And he points out "There are few callings in which there is so big a gap between routine and the best work as in medicine, and no profession needs to be so elastic in its government if it is to be dynamic, not static.... It is here that medical planning is up against the crucial difficulty, in that it requires collectivism for its fabric and individualism for human relationship. And individualism will not flourish easily within the rigid boundaries of a state service, but needs the freer atmosphere which belongs to the voluntary hospital tradition."

The suggested plan is given in its broadest outlines. It is admittedly incomplete. It does not answer many questions of administration and necessary changes in the law but it does present a thesis that the State should underwrite the excessive cost of illness by making use of available facilities in a manner which will tend to encourage the individual citizen to provide himself with health protection and as a co-insurer to assume some of the costs of illness for which he is often party responsible.

Sensible Medical Plan

From the Hartford Courant

There has been so much huffing and puffing about socialized medicine by the pink-tinged New Dealers on the one hand, and the proponents of *status quo* on the other, that the sensible, progressive plan of socialized medicine proposed by Dr. James Raglan Miller in Hartford the other day is worthy of serious consideration. As Dr. Miller so aptly observed, there has been a deal of name calling on both sides, but a dearth of dispassionate study of the facts. To the arch-reactionary Dr. Miller recommended the fact that we already have socialized medicine to a certain degree in our medical care of the tuberculous, the blind, the mentally ill and the indigent. To the radical he pointed out the danger of shackling physicians with bureaucratic control.

The real question at issue is just how far the function of government may safely be extended. No system of medical care, socialized or otherwise, can be any better than the physician. It is he who improves medical care. Therefore Dr. Miller sees as the basic need an increase in the number and quality of physicians and facilities like hospitals, clinics, and diagnostic laboratories. Nothing on the record indicates that Government supervision or operation of such facilities would contribute much if anything to their efficient operation. There is, indeed, evidence to the contrary.

The middle ground suggested by Dr. Miller would have the Federal, State and local governments underwrite the costs of prolonged and expensive medical care while encouraging its citizens to pay for less costly illnesses. Dr. Miller would have such assistance made available from the public treasury if these two conditions were met: a. The applicant must be covered by hospitalization and medical insurance. b. The medical expense must exceed 5 per cent of the annual family income. Payments would be made as loans without interest if they were repaid within five years.

While there may be some question about the feasibility of adopting such a program *in toto,* and about its adequacy, there is a great deal to be said for it because it eliminates bureaucratic control of the physician while at the same time providing some protection for the family of moderate means to whom serious illness might spell financial disaster. If further discussions of socialized medicine could be focused on this type of approach, the results would probably be far better than continued haggling between radicals and reactionaries, which thus far has tended largely to cloud the real points at issue.

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A Day in the Life of Charlotte O. Remaniss, M.D.
(The Story Continues, Episode 4)

In the first episode (*Conn Med* 1994; 58:749), Dr. Remaniss is criticized for failing to meet the monthly productivity goal set for her at MegaHealth Plan, where she is employed. Episode two (*Conn Med* 1995; 59:51) finds Dr. Remaniss accused of fraud by Simon Smeilknot, not because she billed for a service she did not provide, but for not billing a patient for whom she felt sorry. As a result, she is scheduled to appear before the BOSSE (Board of Select Senior Electors) that evening, Dr. Remaniss, we learned in Episode 3 (*Conn Med* 1995; 59:105), is the inventor of BioGlue, the product whose profits fueled the development of MegaHealth Plan and made Dr. Remaniss wealthy—if far from happy. It is still Tuesday, December 3, 2011, the hour is 2:00 PM. Dr. Remaniss has returned to her office from the MegaHealth Plan cafeteria.

"What is wrong?" Charlotte wondered, speaking aloud to the mute, bare walls of her office. Derek had said ... said what? Oh yes, he said it was snowing; her 1:45 had canceled. Without a window, Dr. Remaniss imagined fragile crystalline flakes mounting one upon the other, forming a sterile white blanket across the MegaHealth Plan grounds as far as one could see. Cold, cold, cold ...

"What is wrong?" she said again. Charlotte gnawed at the pad of her thumb with her incisors. At her right hand, her tapping fingers glanced across the formed-lava paperweight she received from MegaHealth Plan in 2003, a reward for surviving five years at the—she giggled, inappropriately—health-care factory. The words, Five Years of Caring, were etched deeply into the square black block on each of its six surfaces. Hefting the paperweight, Dr. Remaniss felt its polished exterior. When vid-line two lit up, displaying Simon Smeilknot's face, she brought the paperweight down upon the matrix picture plate in the work surface of her desk. Nothing. Harder this time. Dr. Smeilknot's face disappeared in shards of flying glass and a spray of blood from the wounds on Charlotte's hand.

"Bought off by gimmicks and meaningless tokens! Evil! Stupid! That's what's wrong." She hoped Simon hurt.

Multicolored jets burst from the wounded electronics, caused, she supposed, by the different chemicals and metals that were being consumed as unnatural electrical connections arced. Her office lights flickered, came back, and steadied as the miniature fireworks display subsided. A commotion outside her office. "Now what? No rest for the weary." Elliot, Nancy, Rhonda, and Derek, her Careteam members, were whispering loudly among themselves and assessing the scene from her open doorway.

"Dr. Remaniss? Is everything all right? Dr. Smeilknot televideoed to say that he had been trying to reach you when your com station entirely disappeared from the com net. Jeez, what a mess! What happened? And your hand. You're bleeding. Nancy, Rhonda—Get the first aid tray. Elliot, give me a hand."

"Derek. Stop fussing. I'm not badly hurt." Charlotte watched as he withdrew a long, splinter of glass from the fold of skin between her index and forefingers. ("No pain," she marveled.)

Simon peered around the door jamb. "What's happened here?"

"Looks like Charly dropped a paperweight, and it shattered her matrix picture plate. An accident," Derek answered, still tending to Charlotte's injured hand.

Disappointed to see that Simon had not suffered any apparent ill effects from being bashed by the paperweight, Charlotte remembered that she hadn't punched the open key to receive his televideo call. He hadn't even seen the paperweight coming. "Simon, it wasn't an accident. I did it deliberately. I wanted to. I would do it again. I was angry." Her words were spoken carefully and slowly. "I'm not sorry."

Simon, still outside the door, unwilling to enter her sanctum, looked perplexed. "Your 2:45 will be here in 15 minutes or so. You'd better get cleaned up. Derek, have maintenance replace the matrix picture plate. Business must go on."

"Simon, it's not business. It never was." Dr. Remaniss shook her head. "We let you help us forget. I'll see you at this evening's hearing with the Board of Select Senior Electors."

Theodore Zanker, M.D.
President

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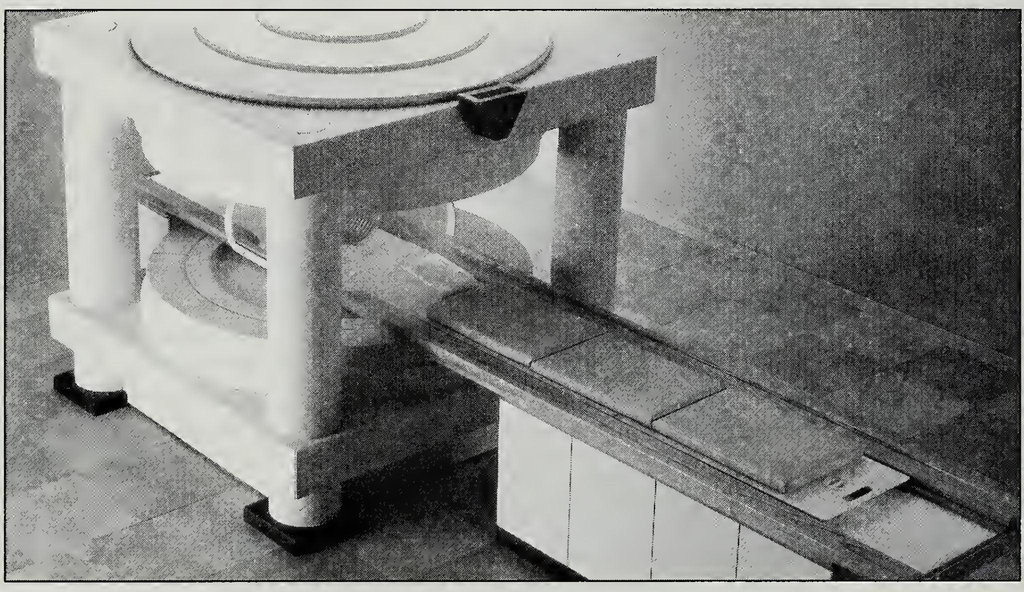

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REFLECTIONS ON MEDICINE

Night Thoughts on End-of-the Century Medicine

ROBERT U. MASSEY, M.D.

TO see ourselves as others see us is rarely granted, but when a loved one becomes a patient and the sickness is grave there can be no escaping some reflections on medicine, even though we know that our vision at such times is refracted by anxiety and impatience. What we see and feel as both physician and spouse is not the stuff of which generalizations should be made, but the experience of an unexpected, possibly mortal illness in one's life partner forces a physician to examine, perhaps at too close range, the forms and rituals of his own profession as well as the motives of those who try to control it. Time will soften my impressions but by then they will have lost something of their sharpness and clarity.

Physicians, at least most of the physicians I have known, are smart, thoughtful, caring people. Some have more empathy than others; some show a remarkably different *persona* at the bedside from that at cocktail parties or staff meetings. Their masks are both amusing and troubling; you don't want your physicians at such times to be thinking about how they are coming across, but rather to be attending single-mindedly to the problem at hand. This role playing is often evident and clumsy in physicians in training, but even old hands may put on a mask, making you wonder whether you have known your colleague as well as you thought. And then we reflect that we too have play-acted at such times; it's just that we felt confidant that we were better at it!

Patient autonomy is in and paternalism is out; that is as it should be. But patients, struggling in the midst of a devastating event, certain to diminish their lives forever, find it painful with their limited knowledge to decide between two courses of treatment. Informed consent, informed, that is, by a few minutes of talk, must often be a vain ritual. It is her physician's judgment she now wants to hear, even though she may question it or disagree; her right to autonomy is far from her mind when life may be at stake.

Continuity of care is an ideal we instill in our medical students from their first few months in medical school; it is not, unfortunately, much regarded in teaching hospitals. With the endless parade of consultants, fellows, residents, and students, many of whom are seen but once, the bewildered patient abandons all efforts to decide who is in charge and finds her security in the familiar face of a friendly PGY-1, who two days later rotates off service. Others come and go, unidentified, without name tags or identifying dress—strangers, without introductions, calling a patient they have never before seen by her first name, asking all the same tiresome questions again and again and again, then disappearing forever. Even a critically-ill patient knows there is something terribly inefficient in all this, and asks her physician-husband to explain. "Are we paying for this? Surely somebody is!"

In the midst of the incessant noise, incivility, and inefficiency of the modern hospital there are among the mostly disinterested crowd a few blessed souls, perhaps nurses aids, lab technicians, therapists. nurses, or even physicians, whose faces, voices, and hands display genuine empathy and equanimity, qualities that are not contrary, but rather often associated in company with extraordinary competence. These are the marks by which the patient recognizes her healers; all of the other amazements of modern medicine and the modern hospital are mostly lost on her, or may be seen as irrelevancies. Of one elegant and expensive procedure to which she declined to submit, she told the physician it was quite obviously of no use to her but only for "your entertainment and enlightenment!"

Most of this changed in the quietly efficient rehabilitiation unit of a well-run nursing home. Here was a place to get well in; the increase in empathy and attention to the serious business of caring was everywhere unmistakable. Some of the hospital culture persisted, but civility and quiet had mostly replaced the cocktail-party racket of the 1990s hospital. It is a mercy that hospital lengths-of-stay have been reduced to less than a week; any benefits that might be gained there would be lost if the economics of a longer stay in such places improved some insurance company's bottom line!

Rereading Walter Pater's description of a temple of Aesculapius in *Marius the Epicurean* evokes visions of a modern hospital with all its wonderfully effective technology somehow incorporated into a place of healing where "Simply to be alive and there was a delight. ...the air of the room about him seemed like pure gold, the very shadows rich with colour."

ROBERT U. MASSEY, M.D., Professor Emeritus, Division of Humanistic Studies, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington.

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MEDICAL NEWS CAPSULES

This Month's Reading in Review

TIMOTHY B. NORBECK

AMA President-Elect Lonnie Bristow, M.D., recently laid out a six-point AMA plan to reform Medicare, including: establishing medical savings accounts; means-testing; relaxing price controls in order to "open up" the program to "price competition"; reducing the "regulatory maze that makes Medicare a bureaucratic nightmare that's ripe for games and rip-offs," eliminating "wasteful and unwanted" or inappropriate care as well as reducing the practice of "defensive medicine;" and reducing fraud and abuse.... Dr. Bristow went on to say that "If we're really going to make this work, the physicians of America had best be at the table.... Reforming the courts without talking to the judges—it makes no sense."

From a speech Dr. Bristow delivered in
San Francisco on January 13, 1995.
Baltimore Sun (15 January 1995)

Some 75% of respondents in a large survey were completely satisfied or very satisfied with their physician.... Only 7% were dissatisfied.... Also not surprising: among those least satisfied were patients with ailments for which clear treatment "often is lacking" such as chronic headaches and lower back pain.

Consumer Reports (February 1995)

"The physician's role in communicating with the patient is not merely important but central, basic in treatment; it's the style of the physician, not the competence of the physician, that is the yardstick people use for keeping or changing their doctor."

Norman Cousins, quoted in
Medical Practice Communicator (January 1995)

"As the voice of the medical profession, we pledge to do everything we can to help make these things happen. It is our contract with America, and we fervently hope that every American will join us."

Excerpt of an AMA ad suggesting
"sensible" health reforms.

Americans pay at least $5 billion each year for their penchant of taking "nonurgent problems" to the emergency department....Charges for emergency department visits were double to triple the charges in physicians' offices and other settings, according to a study published in *Health Affairs*.... The average charge for a first visit to an emergency department was $144 *vs* $43 charged in an office.

AM News (23 January 1995)

The House Ways and Means Committee approved a bill on 8 February "permanently allowing self-employed persons to deduct 25% of their health insurance costs from taxable income".... The bill is retroactive to 1994.

Washington Times (9 February 1995)

"Physician services prices increased only 4.4% in 1994—the smallest rise since the 3.9% rise in 1973, the year of President Nixon's price controls."

American Medical News (6 February 1995)

Young binge drinkers may have more than hangovers to worry about....A new study cited in the journal *Stroke* suggests that heavy drinking in 24-hour periods may trigger strokes in people 40 and younger....The study, by Finnish scientists on patients 16 to 40 years old, reported that stroke victims were more than six times as likely to have been binge drinking, which can range from fewer than five drinks for a thin woman to 10 or more for a heavy man who drinks frequently.

U.S. News & World Report (23 January 1995)

The Health Insurance Association of America's (HIAA) Chip Kahn, one of the "creators" of the association's "Harry & Louise" ad campaign, has accepted the job of staff director of the House Ways and Means health subcommittee.

Los Angeles Times (12 January 1995)

Author Fran Lebowitz thinks we're ready for a constitutional amendment on a maximum number of lawyers.... "Perhaps it should be tied to the number of plumbers," she says..... "The ratio should be about a million to one: for every million plumbers, we'll take a lawyer."

Forbes (19 December 1994)

Only in America: Even though a defendant sold 2,000 "hits" of LSD at one time, the Virginia Court of Appeals (in reversing her conviction) declared this action doesn't prove that she was engaged in a "conspiracy to distribute" the drug....There was no evidence that she knew the buyer intended to resell the drug rather than to consume it himself.

From an article in *Lawyers Weekly USA*
and published in *Fortune* (16 January 1995)

TIMOTHY B. NORBECK, Executive Director, Connecticut State Medical Society.

Letter to the Editor

Letters to the Editor are considered for publication (subject to editing and abridgement), provided that the are submitted in duplicate, signed by all authors, typewritten in double spacing, and do not exceed 1-1/2 pages of text (excluding references). They should not duplicate similar material being submitted or published elsewhere. Letters referring to a recent Journal article should be received within six weeks of the article's publication.

An Aspect of Stroke Care

To the Editor: I wish to take this opportunity to thank you and the editorial staff of *Connecticut Medicine* for deeming it worthwhile and fitting to publish my article "Prompt IV Anticoagulation of Cerebral Embolus Based on Clinical Information Alone: A Case Report," August 1993.

I felt honored from the first, and for that reason hasten to send you a copy of a very important letter I received a few days ago from Christopher P. Cannon, M.D., of Harvard Medical School. Personally, from the beginning of writing, I thought this would be a seminal article. I am glad to be confirmed in my thinking. This patient is now in her 99th year, and doing very well for her age.

As I have often thought, this case has been the acme of my now 57 years in medical practice. Again, I thank you and your editorial staff for making this opportunity to present this case possible to me.

Arthur Koffler, M.D.
Stamford

Dear Dr. Koffler: Thank you very much for sending me your recent article, "Prompt IV Anticoagulation of Cerebral Embolus Based on Clinical Information Alone: A Case Report." I found it very interesting and on a "timely" topic. Indeed, much of what we do in cardiology and medicine is very much time-dependent. I believe there are ongoing trials of thrombolysis in stroke, which are also examining the effect of time to treatment. Thus, your article is a precursor to an important aspect of stroke care.

For your interest, I enclose a reprint of an overview I did on time to treatment in acute MI, some of which I showed at Stamford Hospital. I hope you like it.

Thank you again for your letter and reprint. I hope to see you again some time in the future.

Christopher Cannon, M.D.
Cardiovascular Division
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From the Executive Director's Office

CALL

ANNUAL MEETING OF THE HOUSE OF DELEGATES

The 1995 Annual Meeting of the House of Delegates will be held at the Ramada Inn, 275 Research Parkway, Meriden. The meeting will be held on Wednesday, May 10.

Theodore Zanker, M.D., President
Neil H. Brooks, M.D., Speaker of the House
Marjorie G. Petro, M.D., Secretary

11:30 A.M.	Luncheon and Registration of Delegates
12:30 P.M.	Call to Order
	Adjournment at Conclusion of Business
	Reception for the Incoming President

PROPOSED AMENDMENTS TO THE BYLAWS

(Introduced by the Council)

The following proposed amendments to the Bylaws were presented to the House of Delegates on November 16, 1994 and were tabled for consideration and action at the next regular meeting of the House of Delegates.

In accordance with the Bylaws, these amendments are being published in Connecticut Medicine "on one or more occasions prior to the next meeting … at which meeting the amendments shall be taken off the table and acted upon by the House of Delegates."

SUBJECT: HOUSE OF DELEGATES MEETING

PURPOSE: TO FACILITATE VOTING IN THE HOUSE OF DELEGATES AND CHANGING THE CODE OF PARLIAMENTARY PROCEDURES FROM ROBERTS RULES OF ORDER TO STURGIS STANDARD CODE OF PARLIAMENTARY PROCEDURE, CURRENT EDITION.

Article XVI-Amendment to Bylaws

Section 1, Action

"The Bylaws of the Society may be amended by an affirmative vote of at least two-thirds of the delegates present and voting at any regular or special meeting of the House of Delegates. Amendment shall take effect immediately upon adoption unless otherwise specified."

Present Bylaw reads: "The Bylaws of the Society may be amended by a majority vote of the total number of the voting members of the House of Delegates."

Article XVII-Parliamentary Procedure

Section 1, Rules of Order

"Sturgis Standard Code of Parliamentary Procedure, current edition, shall control all parliamentary proceedings of meetings of the House of Delegates and Council except when in conflict with the Bylaws of the Society."

Present Bylaw reads: In all matters of parliamentary procedure, The Society shall be governed by the most recent edition of Roberts Rules of Order (Revised)."

(continued next page)

INTRODUCTION OF RESOLUTIONS

Article V, Section 12, Par. 3 of the Bylaws of the Society provides that:

Resolutions may be introduced by any Active, Life Member, Student Member or Postgraduate Physician Member of The Society, in compliance with the following provisions.

a. *All resolutions, reports and similar items of business submitted in writing and received at the office of the Executive Director not later than thirty days before the date scheduled for that meeting shall be considered as regular business of the House of Delegates.*

b. *Component county associations or the Student Member or Postgraduate Physician Member Associations whose meetings are held later than thirty-five days prior to the date of the House of Delegates shall be allowed five days after the close of such meeting in which to submit resolutions, reports and similar items of business to the Executive Director's office and still have such material considered as regular business. In no event, however, may such resolutions, etc., be considered regular business if they are received later than fifteen days prior to the date of the meeting.*

c. *Reports, recommendations, resolutions or other new business may be presented to the House of Delegates by the Council of the Society at any time and shall be considered as regular business.*

d. *Any business which does not qualify as regular business in accordance with the foregoing provisions may be accepted for consideration by a majority vote of the delegates present and shall be referred at once by the Speaker to a reference committee. When business is introduced under the provisions of this paragraph the vote shall be taken without debate, except that the introducer shall be allowed not more than two minutes to explain why it should be considered as regular business.*

National Reference Center for Bioethics Literature

Kennedy Institute of Ethics
Georgetown University

Part 2 of Religious Perspectives on Bioethics Provides Native American and Christian Viewpoints

Part 2 of the two-part Scope Note, Religious Perspectives on Bioethics, has just been published by the National Reference Center for Bioethics Literature. Providing bibliographic citations to literature about the divergent attitudes religion can bring to bioethical issues, the 22-page resource includes the views of Native American religious traditions, Protestantism, and Roman Catholicism.

Scope Note 26 is a follow-up to Scope Note 25, which alphabetically presented African religious traditions, Baha'i Faith, Buddhism and Confucianism, Eastern Orthodoxy, Hinduism, Islam, Jainism, and Judaism.

In the new paper, Protestantism is divided into a general category plus individual sections for Anabaptists (Church of the Brethren, Friends Society, Mennonite, Amish, and Hutterite), Assemblies of God, Baptist, the Christian Church (Disciples of Christ), Christian Scientist, Church of Jesus Christ of the Latter-day Saints, Episcopal/Anglican, Evangelical, Jehovah's Witness, Lutheran, Methodist/Wesleyan, Nazarene, Presbyterian/Reformed, Seventh-day Adventist, Unitarian Universalist, and United Church of Christ.

Topics include statements and views on aspects of death and dying, healing, treatment refusal, contraception, abortion, reproductive technologies, genetics, human experimentation, organ donation and transplantation. The authors, Laura J. Bishop and Mary Carrington Coutts, note that material on every subject was not available for each religion.

Separate reprints of Scope Notes 25 and 26 are available from National Reference Center for Bioethics literature, Kennedy Institute of Ethics, Georgetown University, Washington, DC 20057-1065, for $5 each, prepaid ($8 overseas airmail).

IN MEMORIAM

APPLEBY, ROBERT E., John Hopkins University School of Medicine, 1949. Dr. Appleby maintained a pediatric practice in Wilton for over 40 years and served for 13 years as chairman of Norwalk's Board of Health. He was a member of the Fairfield County Medical Association and the Connecticut State Medical Society where he served on the Committee to Study Perinatal Morbidity and Mortality from 1977 to 1978. Dr. Appleby died 15 February 1995 at the age of 70.

KENNEDY, JR., JOHN J., Boston University School of Medicine, 1946. Dr. Kennedy was a general practitioner in Windsor Locks and Suffield since 1951. He served on the staff of Hartford Hospital and in recent years taught residents and interns there. For many years, Dr. Kennedy served as a Medical Examiner for Hartford County. He was a member of the Hartford County Medical Association where he served as a delegate to the Connecticut State Medical Society from 1984 to 1986, the Connecticut State Medical Society and the American Medical Association. Dr. Kennedy died 10 February 1995.

ROTHSTEIN, ISADORE, New York University School of Medicine, 1933. Dr. Rothstein was a former director of the Department of Pathology at Mount Sinai Hospital. He also served as an associate professor of pathology at the University of Connecticut Health Center and was director of the Yoon Pathology Laboratory in Enfield until 1992. Dr. Rothstein was a member of the Hartford County Medical Association, the Connecticut State Medical Society where he served on the Cancer Coordinating Committee from 1962 to 1968 and the Committee on State Blood Bank from 1962 to 1973, and the American Medical Association. Dr. Rothstein died 17 February 1995 at the age of 86.

SAVIN, SANFORD, University of Vermont College of Medicine, 1945. Dr. Savin was a proctologist in Bridgeport since 1948 and served as Chief of Proctology and Attending Surgeon at Park City Hospital. He was a member of the Fairfield County Medical Association, the Connecticut State Medical Society and the American Medical Association. Dr. Savin died 19 February 1995 at the age of 74.

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Emeritus and Associate Director, Travelers Center on Aging
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Christine Waszynski, M.S., R.N.C.
President, Geriatric Nursing Service, Glastonbury

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Appropriateness of Serologic Tests and Parenteral Antibiotic Therapy for Patients with Presumed Lyme Disease

MICHAEL A. GERBER, M.D., VIRGINIA BIELUCH, M.D., ROBERT E. LEVITZ, M.D., MICHAEL F. PARRY, M.D., JAMES SABETTA, M.D., AND GARY SCHLEITER, M.D.

OVER the past year, advertisements have appeared in newspapers and magazines throughout Connecticut asking readers if they are experience recurring, nonspecific symptoms such as muscle pain, joint pain, chronic fatigue, or disturbed sleep. The advertisements go on to suggest that the presence of such symptoms might indicate that the reader has Lyme disease; they then provide a toll-free telephone number which the reader is advised to call for help. Many of those who call eventually have long-term, intravenous antibiotic therapy recommended for presumed Lyme disease.

Some of these symptomatic patients will have negative serologic tests for antibodies to *B. burgdorferi* but are, nevertheless, convinced that they have seronegative Lyme disease. If a patient has symptoms consistent with late Lyme disease and objective evidence of disease (eg, arthritis, abnormal nerve conduction test, abnormal cerebrospinal fluid, abnormal neuropsychiatric testing) he or she should have a positive serologic test for antibodies to *B. burgdorferi.* A negative serologic test in such a patient makes late Lyme disease extremely unlikely, and other possible diagnoses should be pursued. The only exception would be the very unusual situation in which a patient was previously treated with antibiotics for early Lyme disease in amounts sufficient to abort the humoral immune response but insufficient to eradicate the *B. burgdorferi* and prevent the patient from progressing to late Lyme disease.

Some of these symptomatic patients will have positive serologic tests for antibodies to *Borrelia burgdorferi;* however, symptoms cannot be attributed to a current infection with *B. burgdorferi* simply because the patient has detectable antibodies to that organism. First, the enzyme-linked immunosorbent assay (ELISA), which is the most commonly used test for the detection of antibodies to *B. burgdorferi,* can produce false-positive test results. These false-positive results are, at least in part, attributable to the antigens that *B. burgdorferi* share with other organisms including treponemes. In addition, false-positive results have been reported in patients with various rheumatologic and neurologic conditions not related to Lyme disease. Some laboratories use immunoblot assays to corroborate a positive ELISA result. Immunoblot assays have been particularly helpful when ELISA results have been equivocal; however, the performance and interpretation of immunoblot assays for Lyme disease have not been standardized. Second, the patient may have been exposed previously to *B. burgdorferi* and the current symptoms may be unrelated to that previous infection. Once specific antibodies to *B. burgdorferi* develop, they may persist for many years despite adequate treatment. Longitudinal studies in defined populations have indicated that 50% or more of the people who are infected with *B. burgdorferi* are asymptomatic. In some endemic areas, there will be a 5% to 10% "background" rate of seropositivity among patients who have never had clinically apparent Lyme disease.

Vague, nonspecific symptoms such as transient arthralgias or myalgias, chronic fatigue, or disturbed sleep may be part of the symptom complex of patients with Lyme disease, but are rarely, if ever, the sole manifestation of this disease. A patient with such symptoms should

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A statement from the Council of the Connecticut Infectious Diseases Society: Michael A. Gerber, M.D.; Virginia Bieluch, M.D.; Robert E. Levitz, M.D.; Michael F. Parry, M.D.; James Sabetta, M.D.; and Gary Schleiter, M.D.

have a comprehensive evaluation performed in an attempt to identify objective evidence of Lyme disease. Two recent studies have documented the occurrence of fibromyalgia and fatigue after treatment of classical Lyme disease.[1,2] However, these symptoms appear to be of a postinfectious nature and do not respond to parenteral ceftriaxone therapy.[1,2]

Treating a patient with nonspecific symptoms and a positive serologic test for Lyme disease with intravenous antibiotics can cost as much as $5,000 for a two- to four-week course. In addition, intravenous antibiotic therapy may be associated with mild side effects such as diarrhea, rash, nausea, vomiting, or phlebitis, and with less frequent but more serious side effects such as pancytopenia, pseudomembranous colitis, and renal impairment. Recently, the CDC reported on a cluster of 25 cases of biliary complications in a New Jersey hospital serving a Lyme disease endemic area related to intravenous ceftriaxone therapy for presumed Lyme disease.[3] Of these 25 patients, 14 required laparoscopic cholecystectomies. In addition to the unnecessary expense and risk of complications, patients without Lyme disease who receive intravenous antibiotic therapy will often experience a transient improvement in their symptoms because of a placebo effect. When the same nonspecific symptoms recur, the patient will insist on another course of intravenous antibiotics. Multiple subsequent course of antibiotics are then prescribed in a protracted attempt to obtain a complete and permanent remission of symptoms.

Recently, a committee appointed by the American College of Rheumatology and the Council of the Infectious Diseases Society of American completed a cost-effectiveness analysis of empiric treatment with intravenous antibiotics of patients with nonspecific symptoms whose only evidence of Lyme disease is a positive serologic test.[4,5] They concluded that the risks and costs of this approach exceed the benefits. When one considers that these investigators had deliberately attempted to bias their baseline assumptions to favor empirical antibiotic therapy and that the analysis did not consider the cost-effectiveness of repetitive cycles of intravenous antibiotics (which would greatly increase the costs and risks without demonstrable effects on benefits), the conclusions reached appear even more compelling.

Plans are being made to initiate a multicenter, prospective, placebo-controlled investigation of empiric, intravenous antibiotic therapy in patients whose only evidence of Lyme disease is a positive serologic test. The results of this investigation will, we hope, shed some additional light on this issue but will not be available for at least several years.

In conclusion, serologic tests for Lyme disease should be ordered only when clinical and epidemiologic evidence suggest the diagnosis of Lyme disease and not in patients with only nonspecific symptoms such as headache, fatigue, or arthralgias. Although each case must be evaluated individually, currently available information suggests that in patients whose only evidence of Lyme disease is a positive serologic test, the risks of empiric, intravenous antibiotic therapy clearly outweigh the benefits.

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Abstracts: 32nd Annual Orthopaedic Conference

NEWINGTON CHILDREN'S HOSPITAL

FOREWORD—This conference held on 21 October 1994 featured presentations by two pediatric orthopaedic surgeons who had completed pediatric orthopaedic surgical fellowships at Newington Children's Hospital: Michael D. Thomas, M.D., Assistant Professor at George Washington University, Children's Hospital National Medical Center in Washington, D.C., and Gregory A. Mencio, M.D., Assistant Professor at Vanderbilt University in Nashville. Paul J. Urbanek, M.D., Assistant Professor at the Dartmouth-Hitchcock Medical Center in Lebanon, New Hampshire, represented the longstanding, collaborative resident-training program in pediatric orthopaedics between the Dartmouth-Hitchcock Medical Center and Newington Children's Hospital.

This year we were pleased to welcome James R. Gage, M.D., Medical Director of the Gillette Children's Hospital in St. Paul, Minnesota, who reported on the rapid changes occurring in health care in Minnesota and the implications these changes have for the care of children with chronic neuromuscular disabilities. Because these implications are important for both physicians and hospital administrators in the East who have yet to feel the full effect of the tumultuous changes in the provision of medical care as experienced by our colleagues in Minnesota, his address is reprinted in expanded form.

As in past years, the conference highlighted technological advances in the treatment of pediatric orthopaedic disorders. Presented and discussed was a paper on the use of computed tomography (CT) in the analysis of closed reduction for developmental dislocation of the hip (Smith et al) and a paper on three-dimensional computer analysis of Baumann's angle in the treatment of supracondylar fracture of the elbow (Urbanek and Hodge). Orthotic devices remain a significant component of the orthopaedic armamentarium, in spite of the reluctance of managed care schemes to provide appropriate reimbursement for these devices. The value of orthoses is highlighted in a report on the treatment of developmental dislocation of the hip (Langeland et al) and in a report on the treatment of adolescent idiopathic scoliosis (Keggi et al).

Outcomes research has become a popular topic with emphasis shifting from surgical end-stage results, which often require of years of intensive study, to short-term analysis epitomized by postoperative patient satisfaction questionnaires. The significance of long-term follow up in musculoskeletal conditions in the growing child is highlighted in reports ranging from the tethered cord in patients with myelomeningocele (Hartford et al), habitual patellar dislocations (Nissen et al), osteotomies for Blount's disease (Dwyer et al), slipped capital femoral epiphysis (Martin et al), and toe phalanx transfers in congenital aphalangia of the hand (McEleney et al). The application of motion analysis to assist the surgeon in selecting the most appropriate surgical procedures for children with cerebral palsy is emphasized in the report on the first comparison of pre- and postoperative gait analysis in patients with hemiplegic cerebral palsy (Burke et al).

Recent advances in adult trauma care which have influenced the pediatric population were reported on in a paper on fractures of the distal femoral epiphysis (Thomson et al) and a paper on the open treatment of pediatric forearm fractures (Mencio et al). Cost analysis is of increasing importance as highlighted in the report on femoral shaft fractures in children, "Comparative cost analysis of early spica casting *vs* traction treatment" (Thomas et al).

John V. Banta, M.D.
Director of Orthopaedic Surgery
Newington Children's Hospital

Professor, Department of Orthopaedic Surgery
University of Connecticut School of Medicine

Fractures of the Femoral Shaft in Children: A Comparative Cost Analysis of Early Spica Cast *vs* Traction-Cast Treatment Methods

MICHAEL D. THOMAS, M.D., DOLORES A. CORBETT, R.N., LAURA I. TOSI, M.D.
PETER F. STURM, M.D., AND WILLIAM W. ROBERTSON, M.D.

George Washington University, Children's Hospital National Medical Center, Washington, D.C.

We performed a retrospective study at our institution of the costs of treatment of 51 pediatric patients with isolated diaphyseal fractures of the femur treated by the traction-cast method or the early hip spica cast method between 1989 and 1991 to determine the relative cost of each method through the completion of treatment. Medical records were reviewed for each patient to determine the mechanism of injury, method of treatment, length of hospitalization, number of radiographs taken during treatment, complications, and number of follow-up visits. The hospital and outpatient clinic charges including charges for the anesthesiologist, orthopaedic surgeon, radiologist, and transportation, if by ambulance for outpatient follow-up, were determined for each patient. The patients were then divided into two groups based on method of treatment: Group A, 37 patients treated by the traction-cast method; and Group B, 14 patients treated by early hip spica cast method. The average cost of care for each group was then determined. Clinical outcome was not evaluated.

In Group A, the patient's average age was 5.2 years (range 1-9 years) and in Group B the average age was 2.9 years (range 1-7 years). The average length of hospitalization was 19.2 days for Group A and 3.1 days for Group B. The patients in Group A averaged 2.3 outpatient visits (range 1-6) while those in Group B averaged 3.6 outpatient visits (range 2-6) until discharge. A majority of patients traveled to the clinic by ambulance for lack of a private car or lack of a car with adequate passenger restraints for the patient. The use of ambulance transportation to the clinic proved to be the major determinant in the cost of outpatient follow-up care. The average cost of fracture care in Group A was $16,559 (range $7,342-$28,251) and in Group B $7,701 (range $4,111-$12,839). Comparison of the fracture care costs between Groups A and B revealed an average of 53% overall savings when early spica cast treatment is used rather than the traction-cast method.

This study illuminates the financial implications of choosing between the two most common methods of treatment of closed femoral shaft fractures in children up to 10 years of age. It supports the use of early spica cast treatment in favor of the traction-cast method whenever there are no medical contraindications to the former. It identifies two areas, ie, length of hospitalization and transportation, where additional cost reductions may be realized. The value of this study to this institution lies in its utility for determining a cost basis for providing care for the specific injury studied in a similar population.

Fractures of the Distal Femoral Epiphysis

JEFFREY D. THOMSON, M.D., MARK WILLIAMS, M.D., AND STEVE STRICKER, M.D.
Orthopaedic Surgery Service, Tripler Army Medical Center, Honolulu, Hawaii

A retrospective analysis of 30 consecutive fractures of the distal femoral epiphyseal plate showed that complications were more frequent in displaced than nondisplaced fractures. The best results occurred when fractures were anatomically reduced and fixed with pins. No fractures with internal fixation displaced, whereas 40% of fractures reduced with fixation displaced during cast treatment. We were unable to demonstrate that gentle reduction under general anesthesia offered protection against subsequent physeal arrest when compared with closed reduction in the emergency room; however, reductions performed in the operating room were more likely to be anatomic and stable. Early in the study we abandoned closed reductions in the emergency room because of a 66% lost reduction rate. In conclusion, we believe that displaced fractures of the distal femoral epiphysis should be reduced in the operating room, internally fixed, and casted.

Three-Dimensional Computer Analysis of Baumann's Angle*

PAUL J. URBANEK M.D. AND DUNCAN HODGE, B.A.
Dartmouth-Hitchcock Medical Center, Lebanon, New Hampshire

To determine the effects of positioning on Baumann's angle, we performed a three-dimensional computer-analysis on a five-year-old child's normal arm. The effects of internal and external rotation, as well as caudal and cephalad angulation, were measured both separately and in combination (30° each, 15° increments). Wide variation existed between Baumann's angle measured at these various positions when compared with that measured in a true anteroposterior position. The effects of rotation are less than that of caudad, cephalad, and combination effects. When using Baumann's angle to assess the reduction of a supracondylar humerus fracture, one must be careful to obtain accurate and symmetric comparison views using radiographic knowledge presented in this paper.

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*Baumann's angle is determined by the oblique line passing through the distal humeral capitellar epiphysis with respect to the longitudinal line drawn down the long axis of the humeral diaphysis.

Open Reduction and Internal Fixation of Pediatric Forearm Fractures

BRADY WYRSCH, M.D., GREGORY A. MENCIO, M.D., AND NEIL E. GREEN, M.D.
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Twenty-six skeletally immature patients with 27 displaced, diaphyseal forearm fractures treated by open reduction and internal fixation were reviewed. The mean age of the patients at the time of injury was 11.5 years (range four to 15 years). Indications for surgery included open fractures (10), unacceptable closed reduction (14), and loss of reduction (3). Fixation was achieved with either compression plates or intramedullary wires. The average time to union was 3.5 months. The average length of follow-up was 39 months (range nine to 98 months). There was one deep infection resulting in delayed union, one nonunion with failure of hardware, and one proximal radial-ulnar cross union. All but three patients regained full range of motion equal to that of the uninjured extremity. We conclude that open reduction and internal fixation are indicated and can safely be performed in children with open or unstable forearm fractures involving both bones when closed treatment methods have failed. Fixation is reliably achieved with compression plating or intramedullary techniques depending on the nature of the fracture and the age of the patient.

Health Care in Minnesota

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Since 1900 we as a society have added to the average expected life span at birth seven hours for every twenty-four hours lived. Nevertheless, because of the rapid escalation in the cost of medical care, people nationwide are demanding change. That change had been expected to occur as part of President Clinton's promised legislation. However, with the failure of Congress to act, it is now becoming obvious that change is much more likely to come at the state level. In fact, in Minnesota much of that change is already reality. The question now is whether "Minnesota Care" will become a blueprint for change in the rest of the nation.

Two forces are shaping the Minnesota Model. In 1992 big business started to flex its muscle by forming the Business Health Care Action Group (BHCAG), a consortium of 21 of the state's major employers who bonded together to contract directly for health care. However, about the same time legislators pushed for reform that resulted in "Minnesota Care," a program to help the working poor. This legislation includes:

1. The Minnesota Health Care Commission, which includes all stakeholders and makes recommendations to the legislature.
2. Minnesota Care, a program to help the working poor. Enrollees can earn up to 275% of the federal poverty level and pay premiums on a sliding scaled based on their income and family size.
3. A health-care provider tax which consists of a tax of 2% of the gross revenues on providers plus a 1% tax on not-for-profit health plans and health maintenance organizations (HMOs).
4. Integrated Service Networks (ISNs) and Regulated All Payer Systems (RAPOs). An ISN is intended to be a new kind of health plan which is accountable for cost and quality; it was invented to prevent illness and is competitive with other ISNs in the state. Recently the University of Minnesota Institute for Health Services Research identified 18 organizations or combinations of organizations that intend to form ISNs, but the three largest (Blue Cross & Blue Shield, Health Partners, and Alina Health Systems) already have 2,230,000 members in a state with a population of just over four million. RAPO is the name for cost containment and quality regulations that will govern all health-care services not covered by the ISNs.
5. Spending limitations for providers and payers that are tied to the consumer price index.
6. Insurance reforms for small groups and individuals.

The question now arises, "What effect will all of this have on the care of persons with chronic disease and/or handicaps?" This question is particularly crucial for children with chronic illness since they represent 5% of the pediatric population but account for 40% of all pediatric hospital days. Two things seem to be happening:

1. Barriers are being erected around neighboring states and medium-size cities within the state as each tries to set up its own system of care and prevent its own particular clientele from going "out of plan." This tends to prevent those with disabilities from seeking out the "center of excellence" of their choice and condemns them to "universal mediocre care." Because of their intense specialization, centers of excellence can produce an optimal outcome at an optimal price and so they thrive when outcomes are assessed and compared, when markets are open and long-term benefits outwieght short-term gains. Because of this they would probably do best in a single-payer system as opposed to what is currently being put together in Minnesota and much of the rest of the nation.
2. Although all of the large payer networks profess to be dually interested in quality and cost, their actions to date indicate that their only consuming interest is cost. Consequently, in an effort to hold down costs, the service networks are limiting services to their clients with chronic, handicapping conditions. It is my personal feeling that some of this is deliberate in the hope that individuals who require a proportionately large share of their resources will go elsewhere for care. Unfortunately, there currently are no state or federal laws to prevent this practice.

The future of medical care in Minnesota and the nation is somewhat in doubt. It is apparent that managed care is probably here to stay, as the country is unwilling, and probably unable, to continue to bear the burden of rising health-care costs if it wishes to stay globally competitive. As such, the cost of providing medical care will level off and physicians will have less and less to say about how they practice. The long-term outcome for American medicine really depends on whether the federal government is willing to pass laws that would govern the behavior of the insurance conglomerates and bring reason and order to the marketplace. If this happens, HMOs and ISNs will then become convinced that optimal quality is the best way to insure lower costs. Then, centers of excellence such as Gillette Children's Hospital and Newington Children's Hospital, recognized as certified, regional centers which can prove superior outcomes at a reasonable cost, will thrive and prosper. If the federal government proves unwilling or unable to act, health-care reform will continue to be driven by the marketplace and individuals will not be free to choose where they wish to have their care. In that scenario, children with disabilities and other hardship cases will be tossed "like a hot potato," centers of excellence such as Gillette and Newington Children's Hospitals will become victims of the marketplace, and "universal mediocre care" will become the rule as individual specialists within HMOs try to take on the whole gamut of subspecialized care. At this critical time we all need to become political activists if we are to insure that this latter scenario is not to become reality. Of late, we as physicians have become identified with egocentricity, avarice, and greed. If in the future we can become identified as advocates for our patients and as compassionate and willing to undergo some self-sacrifice in our patients' interests, we will do much to insure adequate health care for our patients and take back the control of our profession.

The Effects of Femoral Derotational Osteotomy on Gait in Patients with Spastic Hemiplegic Cerebral Palsy

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The effect of femoral derotational osteotomies on the gait patterns of 10 children with spastic hemiplegic cerebral palsy was studied using both physical examination and computerized gait analysis. Seven procedures were intertrochanteric osteotomies and three were supracondylar osteotomies. The average age at surgery was 9.9 years (five to 22 years). Pre- and postoperative data were analyzed to determine changes in clinical examination, and kinematic and kinetic data. Electromyographic data were not studied. Associated surgeries included hamstring lengthening (9), rectus transfers (7), Baker aponeurotic gastrocnemius lengthening (7), and tibial derotational osteotomy (2). Significant improvements were noted in transverse and sagittal plane kinematics at the pelvis, hip, knee, and ankle and defined as a 1-grade increase in muscle strength, a range of motion change > 5 degrees, or a gait cycle timing change of at least 5%. Sagittal plane kinetics and temporal stride data, however, showed no significant changes. Clinical hip internal rotation increased from an average of 15.5° to 39°. (Hip power generation was not diminished by derotation.) Kinematic hip stance internal rotation decreased from 20° internal to 3° external and foot progression from 9° internal to 17° external. As gait-directed procedures, femoral derotational osteotomies in conjunction with soft-tissue balancing helped to normalize the gait patterns of the patients in this study.

Osteotomy as a Treatment for Infantile Blount's Disease: An Analysis of the Experience at Newington Children's Hospital

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Infantile tibia vara (Blount's disease) is a developmental disorder that affects the medial aspect of the proximal tibial physis. Blount's disease is relatively uncommon, occurring in 37 of 5,000 children who are seen for the evaluation of bowleg deformity. Blount's disease appears to be abnormal compression on the proximal medial tibial physis leading to retardation of growth of that area. If untreated, severe degenerative joint disease develops in early adulthood. Langenskiold[1] described a six-stage radiographic classification of infantile tibia vara based on changes in the proximal medial tibial physis.

Management of the patient with infantile tibia vara is aimed at altering the abnormal compressive forces across the proximal medial tibial physis. Orthotic management with an above-knee orthosis is currently the treatment of choice for the child 14-30 months of age. Osteotomy of the proximal tibia is indicated for the child who is first seen after the age of three years, for the child 30-36 months of age who is a poor candidate for orthotic therapy, and for the child with persistent tibia vara despite adequate orthotic management. Epiphyseal-metaphyseal bone bridge resection, elevation of the medial tibial plateau, and epiphysiodesis are indicated in the more advanced stages of the disease.

In a 15-year retrospective cohort review of all patients with infantile tibia vara treated with proximal tibial osteotomy at Newington Children's Hospital, a total of 12 patients (16 extremities) with radiographic changes characteristic of Blount's disease which fulfilled inclusion criteria for this review were identified. The average follow-up was 4.65 years.

Our review shows that proximal tibial osteotomy is a safe procedure for the treatment of infantile tibia vara with complications in 4 of 16 extremities. The most common complication seen was transient paralysis of the deep peroneal nerve (3 of 16). The procedure has a predictably low rate of repeat osteotomy (1 of 7) if performed on extremities with Langenskiold stage I or stage II disease. Importantly, we found a 50% requirement for repeat osteotomy if the procedure was performed on extremities

with stage III or stage IV disease. We were unable to show a clear correlation between preoperative varus or postoperative alignment and the need for repeat tibial osteotomy because of a recurring deformity. Reosteotomy rates were higher for patients older than four years of age who tended to present with later stages of disease that those under four years of age. No correlation was found between the type of surgical osteotomy, intraoperative fixation, or postoperative immobilization and the subsequent recurrence of deformity.

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Tethered Cord* Release: Effects on Scoliosis

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To help define the relationship between tethered cord release and its effect on scoliosis, 27 patients with tethered cord syndrome* and scoliosis were identified from a group of 61 patients with a diagnosis of tethered cord syndrome. Ten patients had a congenital scoliosis and 17 had neurogenic scoliosis. Of the 17 patients, all but one had a surgical release of the adherent neural tissue.

At review, the 16 patients with neurogenic scoliosis and tethered cord release had an average follow-up of five years and four months from surgery. Eight of these patients went on to require spine fusion because of progressive deformity; six patients had stabilization of spine deformity, one patient had curve improvement, and one had curve progression until a second detethering procedure was followed by a spine fusion. The patients with curves that improved or stabilized had a mean curve magnitude of 20° and minimal neurologic deficit. Of the eight patients requiring fusion, six had an initial curve magnitude of > 30° at the time of detethering and six had neurologic levels at or about T12. It is concluded that detethering of the spinal cord in patients with associated scoliosis will be beneficial in stabilizing spinal curves < 30° in patients with neurologic involvement in the lumbar or sacral level.

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*The tethered cord syndrome refers to an abnormally low lying conus medullaris within the spinal canal.

Use of the Charleston Bending Orthosis in Idiopathic Scoliosis: A Single Institution Study with 12-Month Follow-up After Maturity

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Orthotic treatment of patients with idiopathic scoliosis has been demonstrated to arrest curve progression in many skeletally immature patients. Traditionally, full-time bracewear has been required but has been accompanied by poor patient acceptance. The Charleston Bending Orthosis (CBO) was developed as a nighttime bending brace. A single-institution, retrospective review of patients treated with the CBO at Newington Children's Hospital was undertaken to compare efficacy and complications with full-time wear.

Twenty-three patients met the inclusion criteria of idiopathic scoliosis. They had a single structural curve with its apex below the seventh thoracic vertebra, were skeletally immature at the initiation of bracing, had received no treatment before using the CBO, and demonstrated adequate patient compliance. Patients wore the CBO for eight hours nightly. Standard clinical and radiographic parameters were tracked. All patients were followed until a change in treatment plan was required (CBO failure) or were braced until maturity and followed for at least 12 months after brace discontinuance. Twelve additional patients met all the above criteria but had follow-up for less than 12 months. Their preliminary results did not differ from the group with complete follow-up, but they were excluded from the statistical analyses below, as were the two patients who failed brace treatment.

The average age at the start of brace treatment was 12.9 years and the average period of bracing lasted 26 months. The average Risser stage* at the initiation of bracing was 0.2. Initial curve average was 30.6° (range 25°-39°). Two patients required a change in treatment plan because of CBO failure; one was prescribed a full-time underarm orthosis and the other underwent spinal fusion with instrumentation. Overall, at final follow-up the structural curve had decreased an average of 1.3° (range, 11°-decrease to a 9°-increase). One patient had a curve increase of 9° and two other patients had curve increases of 6°. All other curves increased by not more than 5° or they decreased. The compensatory curve at final follow-up had increased an average of 3.0° (range, 12°-decrease to a 12°-increase) and this included six patients with increases in curve magnitude greater than 5° (range 8°-12°). Compensatory curve exacerbation was most common when the structural curve was a lumbar curve. Progression of curves after brace discontinuance was also noted. Two of 21 structural curves increased by 6° after bracing was completed. Three of the 21 compensatory curves increased by 8° each. All of the patients who completed treatment with the CBO had a clinically acceptable result with no significant decompensation. The final primary curve averaged 29.3° (range 22°-44°) and the compensatory curve averaged 21.2° (range 5°-37°).

The results of this study support nighttime bracing with the CBO for the treatment of idiopathic scoliosis in the population defined by this investigation. The number of failures is consistent with other forms of part-time and full-time brace treatment while allowing part-time wear. The authors note the risk of exacerbating the compensatory curve with the bending brace, a phenomenon observed in this investigation. However, the clinical result was not found to be compromised. The CBO appears to be effective in providing the desired clinical result of a balanced spine and the arrest of curve progression during skeletal growth.

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*Risser stage refers to the degree of ossification of the iliac apophysis noted on an AP x-ray film of the pelvis. With the onset of puberty, the iliac apophysis begins ossification laterally and extends medically dipping down adjacent to the SI joint. When complete excursion has occurred and the apophysis totally ossifies to the ilium, spinal growth is completed.

Pavlik Harness* Experience at Newington Children's Hospital

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Ninety-seven patients who were diagnosed with developmental dysplasia of the hip and treated in a Pavlik harness at Newington Children's Hospital between 1988-1991 were retrospectively reviewed. One hundred thirty-one hips were treated on the basis of instability (Ortolani or Barlow signs) or an abnormal ultrasound using the criteria of Graf.[1]

Ninety-five percent (92/97) of patients (123/131, 94% hips) were successfully treated with the Pavlik harness. The remaining 5% (5/97) patients (eight hips) had an abnormal hip on examination and/or continued to require an abduction orthosis at the final follow-up evaluation (average age, one year eight months).

Forty-four percent (58/131) of the hips were unstable (Barlow and/or Ortolani positive) on initial examination. Ninety-five percent (55/58) of the unstable hips stabilized at an average of three weeks into treatment with the Pavlik harness. Five percent (3/58) required closed reduction. Seventeen percent (22/131) of the hips were dislocated (Ortolani positive) on initial presentation; 91% (20/22) of these relocated with the Pavlik harness.

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* Pavlik harness is an adjustable canvass harness applied to the neonate with developmental dysplasia of the hip which holds both hips in a flexed position above 90° with both thighs abducted approximately 45°.

Pavlik harness failures were defined as hips with persistent dysplasia (acetabular index >29) (3%, 4/131) on final follow-up, hips that required closed reduction (2%, 3/131), and hips that developed avascular necrosis (0.5%, 1/194). Avascular necrosis occurred in a total of three hips (1.5%, 3/194). However, two hips (1%) were treated with closed reduction. Therefore, we report an avascular necrosis rate of 0.5% (1/194) associated exclusively with the Pavlik harness. None of the hips required open surgical procedures.

We conclude that the Pavlik harness is a safe and effective means for early treatment of developmental dysplasia of the hip.

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The Southwick Osteotomy for Slipped Capital Femoral Epiphysis: Long-Term Follow Up

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Slipped capital femoral epiphysis (SCFE), the most common hip disorder occurring in adolescence, is characterized by a growth disturbance of the proximal physis, leading to a weakening of the physis and resulting in subluxation of the proximal femoral metaphysis and ultimately posterior and inferior displacement of the femoral head in relation to the femoral neck.

Surgical treatment of SCFE includes pin fixation *in situ* to prevent progression of the slip; it is usually the definitive treatment for most mild and moderate slips. Osteotomy has been reserved for more severe slips with limited range of motion.

In 1967, Southwick described an osteotomy at the level of the lesser trochanter to correct the deformity caused by severe slipping.[1] The theoretical advantages of this procedure include a low incidence of avascular necrosis, no direct insult to the hip joint, stimulation of early closure of the slipped epiphyseal plate, restoration of hip function, and no impedance to further corrective surgery. The present study seeks to determine the long-term results of the Southwick osteotomy for SCFE and identify factors that indicate poor outcome or prognosis.

Materials and Methods

From 1957 to 1985, 34 Southwick osteotomies were performed in 31 patients at Newington Children's Hospital. Males outnumbered females two to one, Caucasians outnumbered African Americans two to one, and most patients were overweight (average weight 159 lbs.). The average age at the time of onset of pain was 13 years seven months and the average age at the time of surgery was 14 years three months.

Most patients complained preoperatively of persistent pain and had a limited range of motion. The average range of motion preoperatively was 64° of flexion, 19° of abduction, with an external rotation deformity of 27°.

Preoperatively, anteroposterior (AP) radiographs showed an average neck-shaft angle of 113° and lateral radiographs showed an average neck-shaft angle of 63°. The average slip angle measured on the AP radiograph was 30° (range 10°-65°).

The severity of a slip was determined according to slip angles measured on AP radiographs. Slip angles $\leq 30°$ were classified as mild, slip angles > 30° or < 50° were classified as moderate, and angles > 50° were classified as severe. Using this system there were 15 mild slips, 14 moderate slips, and five severe slips.

The average planned correction as dictated in the operative note was 28° on the AP radiograph (range 15°-40°) and 40° on the lateral radiograph (range 15°-70°).

Results

The average follow-up was 10 years (range 1-18 years). Sustained improvement in range of motion was noted. Average final flexion was over 100°, abduction almost 40°, and the rotational arc of motion improved by almost 50°.

Radiographic appearance of the hip improved in all patients. Postoperative radiographs demonstrated persistent correction at follow-up. The average AP neck-shaft angle was 134° and the average lateral neck-shaft angle was 24°.

Overall results as determined by the original Southwick scoring system were 22 excellent results, four good, five fair, and three poor results. Seventy-six percent of all patients had good or excellent results at an average of 10 years postoperatively. Eight (24%) had results classified as poor or fair. No patients had avascular necrosis. Chondrolysis developed in eight patients (23%) postoperatively and appears to be a sign of poor outcome. Of the eight patients with chondrolysis, six (75%) were judged to have fair-to-poor results. This accounted for 75% of all the fair-to-poor results.

Also, as slip severity worsened, results tended to worsen. Chondrolysis was more frequently associated with the higher grade slips. When chondrolysis developed following osteotomy for a severe slip, the results were fair-to-poor 100% of the time.

Conclusions

Seventy-six percent of the patients undergoing the Southwick osteotomy had good to excellent results. The radiographic appearance of the anatomic relationship between the femoral head and shaft were restored following the osteotomy. Additionally, range of motion following osteotomy was significantly improved in most patients and was maintained at 10 years. The incidences of avascular necrosis and chondrolysis for this procedure were similar to those reported in the literature.

It appeared that the more severe slips were likely to have fair-to-poor results. The occurrence of chondrolysis postoperatively was likely to lead to poorer results. Conversely, most of the fair-to-poor results had associated chondrolysis. Severe slips with postoperative chondrolysis had the worse results.

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Toe Phalanx Transfers in Congenital Aphalangia of the Hand

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Congenital aphalangia is a rare birth defect which remains a great challenge to the hand surgeon. Digit augmentation through toe phalanx transfer seems to be the only reliable method of bone graft to a recipient bed devoid of osseous elements. An earlier study from Newington Children's Hospital was the first to demonstrate reproducible physeal patency and subsequent growth in transplanted phalanges in children.[1] The current study adds more patients to the original series and specifically examines long-term functional results, subjective satisfaction, and donor-site morbidity. We also again looked at the unique phenomena of physeal patency and subsequent digital growth.

At Newington Children's Hospital between 1974 and 1993, composite toe (phalanx, epiphysis, collateral ligaments, and volar plate) transfers were placed in 42 children with congenital aphalangia. All grafts were harvested extraperiosteally. Twenty-six patients were called back for physical and radiographic examinations. Three patients from out-of-state who were not able to return completed a questionnaire. Two local patients refused repeat physical examination but completed the questionnaire. Nine patients (most from out-of-state) were lost to follow-up. Two patients were excluded because follow-up was too short (< 18 months). The senior author (HKW) was the attending surgeon in every case.

The 40 children in the study group underwent 68 operations involving 99 composite phalanx transfers in the reconstruction of 96 digits. Twenty-six patients were called back and their follow-up averaged 11 years; three patients were followed more than 20 years. In this group, toe phalanx grafts were transferred to 55 digits. Physeal patency rate was 94% one year postoperatively. Subsequent physeal growth averaged 86% of projected growth, as determined by radiographs of the contralateral foot and the involved hand on the same film plate. Younger children showed more growth. Functionally, for grasp, 12 patients had good grasp, four fair, and 10 poor. For pinch strength, 15 had good pinch strength, three fair, and eight poor. Active and passive range of motion averaged 62° and 78°, respectively; younger children had greater range of motion. Sensation was normal in all reconstructed digits and harvest-site morbidity was almost nil. Appearance of the hand was an issue with seven patients, all females. Ten patients had complications which required reoperation, five for digital instability, three for contractures, and two for postoperative eschars. Thirty of the 31 patients who completed the questionnaire were satisfied with their results.

The results of this study show that toe phalanx transfer is a safe and effective method in the reconstruction of the congenitally aphalangic hand. There is negligible donor site morbidity and high patient satisfaction. Physeal patency and subsequent growth is highly reproducible when the phalanx is harvested extraperiosteally. Good active range of motion allows the reconstructed digit to be quite functional. Younger patients had the best outcomes.

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Surgical Treatment of Recurrent Patellar Dislocations in the Pediatric Patient

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Recurrent patellar dislocations are difficult to treat effectively as evidenced by the multitude of procedures and treatment options currently being used. Treatment is especially difficult in children for whom open physes are an additional concern. In adults, retinacular releases and bone osteotomy procedures—primarily those that involve the moving of the tibial tubercle—are the procedures most commonly advocated. Theoretical concerns regarding the surgical disturbance of the tibial tubercle apophysis and the proximal tibial physis make osteotomies potentially hazardous in children. Soft-tissue reconstructions of the extensor mechanism, such as the Roux-Goldthwait procedure, substantially limit the risk of premature physeal arrest and provide options for the surgical treatment of this problem. However, no follow-up studies of this procedure exist for the pediatric population.

We retrospectively reviewed the results of 27 operative procedures in pediatric patients with the diagnosis of recurrent patellar dislocations. Eleven Roux-Goldthwait procedures, 10 retinaculum-only procedures, and six tibial tubercle transfer procedures were performed. Patients were reviewed and examined to determine the success of the procedures. Successes were achieved when patients had no repeat dislocation, no pain in normal daily activities, and no apprehension to patellar manipulation. A patellofemoral rating scale (Lysholm scale) was administered as a follow-up to 20 procedures and was also used to determine the success of a procedure. Both the Roux-Goldthwait and bone transfer procedures achieved better results both objectively and subjectively, than did the retinacular procedures alone. In children under age 15, the Roux-Goldthwait procedure achieved better results (70%), though not statistically so, than the bone transfer procedures (50%).

This study shows good treatment results using the Roux-Goldthwait procedure in pediatric patients with recurrent patellar dislocations. We also determined that treatment of this problem with simple retinacular procedures is inadequate and should not be done. Finally, we feel that because of the theoretical concerns of premature physeal arrest, bone transfer procedures should not be done in skeletally immature individuals. This is especially true since a viable, proven soft-tissue reconstruction procedure exists.

Posterior Spinal Fusion with Segmental Instrumentation in Moe-King Type I Idiopathic Scoliosis

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In 1983 Moe and King described five curve types in adolescent idiopathic scoliosis (AIS), including the Type I curve, in which the lumbar curve is of greater magnitude and less flexibility than the thoracic curve. Posterior spine fusion of both curves to the fourth lumbar vertebra was the recommended treatment for patients requiring surgery. Recent advances in anterior instrumentation and fusion techniques have prompted interest in this technique or method as an alternative to posterior spinal fusion in patients with this type of AIS. The purpose of this study was to evaluate the results of posterior spinal fusion in Moe-King Type I AIS utilizing posterior segmental instrumentation systems in a consecutive series of patients at Newington Children's Hospital.

Between 1982 and 1990, 205 patients with AIS underwent posterior spinal fusion with segmental instrumentation, of whom 8% (16 patients) had a Moe-King Type I scoliosis. This group consisted of 14 girls and two boys; the average age at surgery was 15.5 years. One patient had instrumentation with the Luque sublaminar wire technique, while the remainder had a posterior spine fusion with a double-rod multiple-hook construct. A thorough pre- and postoperative radiographic analysis of the Cobb angle* in the coronal and sagittal planes, spinal decompensation, apical vertebral translation, and angulation of the caudal fused vertebra was the means of assessment in this study.

The average preoperative curve magnitudes were 42° thoracic and 59° lumbar, which corrected to an average of 27° thoracic and 33° lumbar, representing a 36% and a 44% correction, respectively, at 2.5 years of follow-up. There was no significant change in sagittal plane measurements from pre- to postoperatively. Spinal decompensation improved the most with an average correction of 62%. Improvements were also seen in the residual caudal vertebral angulation and the apical vertebral translation. Complications requiring subsequent surgery developed in three patients, and consisted of an infection, a dislodged caudal hook, and progression of the scoliosis which required subsequent extension of the fusion. These findings are consistent with those reported previously in the literature and confirm that early satisfactory outcomes may be obtained utilizing posterior spinal fusion with segmental double-rod instrument in Moe-King Type I scoliosis in adolescent idiopathic scoliosis.

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*Cobb angle refers to a way of measuring a scoliosis curve and is determined from perpendiculars erected from the maximally tilted vertebrae at either end of a scoliosis.

Computed Tomographic Scan Analysis of Closed Reduction for Developmental Hip Dislocation

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The purpose of this study was to determine whether specific measured parameters on computed tomographic (CT) scans used to assess closed reduction in developmental hip dislocation (DDH) were predictive of outcome. Computed tomography can identify femoral head position after closed reduction in infants in spica casts, and we sought to determine whether findings on these CT scans were correlated with persistent dysplasia or the development of avascular necrosis (AVN).

Methods

From 1985 through 1990, CT scans were performed in 55 infants in spica casts after closed reduction of DDH. Seventy-one of the 110 hips were dislocated. Age averaged 4.8 months at diagnosis and eight months at reduction. Ten measurements were made on each CT scan. Follow-up radiographs were assessed for residual dysplasia and AVN; the length of follow-up averaged 34 months.

Results

Avascular necrosis occurred in 14 hips (19%). The angle of hip abduction correlated with AVN on a follow-up radiograph with a P value of .004. Residual dysplasia was found in 13 hips (18%). A modified Shenton's line drawn off the symphysis pubis, as well as posterior displacement of the femoral neck relative to the tri-radiate baseline, both correlated with the finding of persistent dysplasia with P values of .01 and .03, respectively.

Discussion

The correlation of AVN with hip abduction after closed reduction for DDH was confirmed in our study. No hip that was abducted 55° degrees or less developed AVN, although there was not an abduction angle that always produced AVN. Persistent dysplasia was associated with posterior, rather than lateral, position of the femoral neck, suggesting that hips may settle into the acetabulum. After closed reduction in DDH, outcome may be compromised if excessive hip abduction or posterior femoral head position are documented on a postreduction CT scan.

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Granisetron

MOJGAN NODOUSHANI, R.Ph.

NAUSEA and vomiting are among the most distressing and debilitating side effects of cytotoxic chemotherapeutic agents. Introduction of the new class of antiemetic agents, the 5-HT_3 (serotonin) receptor antagonists, is a major advance in the prevention and treatment of chemotherapy-induced emesis. Granisetron (Kytril®, SmithKline Beecham), a potent and specific antagonist of the 5-HT_3 receptor, is the most recent agent in this class approved by the FDA for the prevention of nausea and vomiting associated with initial and repeated courses of emetogenic cancer therapy.[1]

Pharmacology

The most emetogenic cytotoxic chemotherapeutic agents release serotonin from enterochromaffin cells which are located in the upper gastrointestinal (GI) tract. Serotonin stimulates 5-HT_3 receptors located peripherally on vagal afferent nerves in the GI tract and centrally in the chemoreceptor trigger zone (area postrema—floor of the fourth ventricle) of the brain.[2] Granisetron controls chemotherapy-induced emesis by selectively blocking the 5-HT_3 receptors in the gastrointestinal tract and in the chemoreceptor trigger zone.[1-3]

Pharmacokinetics

Granisetron is widely distributed in body tissues.[4] The plasma protein binding of granisetron is approximately 65%.[5] The volume of distribution of granisetron is 2 to 3 L/kg.[4,6,7] Granisetron is metabolized predominantly in the liver.[4,7] Metabolism involves N-demethylation and aromatic ring oxidation followed by conjugation.[5] The pharmacologic activity of metabolites is not known. A pharmacokinetic study in patients with hepatic impairment due to neoplastic liver involvement showed that total clearance was approximately halved compared to patients without hepatic impairment.[5] Only small amounts of unchanged granisetron have been recovered in the urine following intravenous doses.[6] Total clearance of granisetron was not affected in patients with severe renal failure who received a single 40 mcg/kg intravenous dose of granisetron injection.[5] The total body clearance of granisetron is 0.2 to 0.5 L/hr/kg.[6,7] There has been considerable interpatient variability in half-life and total plasma clearance in normal volunteers and in cancer patients.[4,7] The elimination half-life of granisetron in normal volunteers is four to five hours, but is 10 to 11 hours in cancer patients.[4,6,7] The longer half-life in cancer patients may be attributed to: a) differences in drug metabolism induced by illness; b) drug interactions with coadministration of chemotherapeutic agents; and c) changes in plasma protein binding due to illness.[6] Additional pharmacological studies are required to fully elucidate this issue.

Clinical Trials

In a multicenter, randomized, double-blind study, Riviere et al, compared the efficacy and safety of three different doses of granisetron in patients receiving high-dose cisplatin therapy (mean dose >97mg/m^2) for the first time.[8] In this study 157 patients were randomized to a single dose of one of three parenteral granisetron treatment groups: 2 mcg/kg, 10 mcg/kg, or 40 mcg/kg. In each group, up to two 3 mg rescue doses of granisetron were

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allowed if more than mild nausea or vomiting occurred. No vomiting, or nothing worse than mild nausea, during the first 24 hours was seen in 30.8%, 61.5%, and 67.9% of patients receiving the same dosage regimen of granisetron, respectively. These differences were significant between the groups receiving 2 mcg/kg and 10 mcg/kg, and 2 mcg/kg and 40 mcg/kg of granisetron. There were no statistically significant differences in any efficacy variable between the 10 mcg/kg and 40 mcg/kg groups, although in each case the trend favored the higher dose. Over the seven days of the study, 82.7%, 82.7%, and 86.8% of patients in groups receiving 2 mcg/kg, 10 mcg/kg, and 40 mcg/kg of granisetron, respectively, were treated with granisetron alone. Headache was the most common side effect, reported by 9.6% of patients; the majority of headaches were mild. There was no difference between the treatment groups regarding the adverse event rate. This study concluded that prophylactic doses of 10 mcg/kg or 40 mcg/kg granisetron lead to a safe and satisfactory degree of control of nausea and vomiting induced by high-dose cisplatin.

In a more recent randomized, double-blind, multicenter, parallel-group study, Navari et al randomly assigned 184 chemotherapy naive patients to receive a single dose of either 5 mcg/kg, 10 mcg/kg, 20 mcg/kg, or 40 mcg/kg of granisetron prior to high-dose cisplatin chemotherapy (81-120 mg/m^2).[9] In this study, 23%, 57%, 58%, and 60% of patients receiving 5, 10, 20, 40 mcg/kg of granisetron, respectively, experienced a major response with two or fewer episodes of vomiting and no use of rescue medication over 24 hours. A complete response (no vomiting and no use of rescue therapy) was experienced over 24 hours in 18%, 41%, 40%, and 47% of patients receiving the same dosage regimen of granisetron, respectively. Upon analysis, this study established that single doses of 10 mcg/kg of granisetron or higher are more efficacious than 5 mcg/kg dose. This study also demonstrated that there were no statistically significant differences in efficacy between the 10 mcg/kg dose and the 20 and 40 mcg/kg doses. The most frequent adverse effects were headache, diarrhea, constipation, and fever.

Adverse Effects

The most common side effects reported with granisetron include: headache, diarrhea, constipation, somnolence, and asthenia. The most prevalent adverse effect is mild to moderate headache (11% to 16%).[6,10,11,12] Headache did not appear to be dose-related and required no more than simple analgesia. The second most frequent adverse effect of granisetron is constipation (4%).[4,10] Mild elevations in liver function tests have been reported with granisetron.[4,6,13] Hypertension, hypotension, sinus bradycardia, atrial fibrillation, AV block, and ventricular ectopy have been rarely observed. No extrapyramidal effects have been reported in any of the trials using granisetron. Other adverse effects include agitation, anxiety, CNS stimulation, insomnia, flushing, and fever.[5]

Dosage, Administration, and Cost

Granisetron injection is available in 1 mL single-use vials containing 1mg. The recommended dose is 10 mcg/kg infused intravenously over five minutes, beginning within 30 minutes before initiation of chemotherapy, and only on the days chemotherapy is given.[5]

The recommended dose in children two to 16 years of age is 10 mcg/kg. Safety and effectiveness in children under two years of age have not been established. No dosage adjustment is recommended in elderly, renal failure, or hepatically impaired patients.[5]

Intravenous granisetron has recently been shown to be stable in 5% dextrose in water and normal saline solution in plastic syringes at concentrations of 0.05, 0.07, and 0.1 mg/mL at 5°C and 24°C for 14 days.[14]

At Hartford Hospital the use of granisetron is restricted to medical and surgical oncologists and is used per protocol for highly emetogenic agents. The dosing protocol is as follows:

0.7 mg for patients $\leq$ 70 kg;
1 mg for patients > 70 kg;
1.5 mg for patients > 100 kg.

As part of our protocol, granisetron is given over two minutes by IV push. Dexamethasone 10 mg IV is usually given in addition to granisetron. Lorazepam and prochlorperazine are used as necessary. Granisetron is not used as an antiemetic agent for break-through nausea and vomiting.

Granisetron has replaced parenteral ondansetron as part of our antiemetic program at Hartford Hospital. There has been no change in efficacy or patient satisfaction with this changeover. Approximately 80% of patients receiving highly emetogenic chemotherapy experienced no vomiting. The implementation of our antiemetic program in May 1994 has resulted in a cost savings of $9,000 per month.

The cost of granisetron is $97.41 per 1 mL vial.

Place In Therapy

Granisetron is a superior antiemetic agent when compared to traditional agents such as high-dose metoclopramide. Granisetron is a selective serotonin antagonist which does not have the extrapyramidal effects of dopamine antagonists, and it is clinically as effective as other serotonin antagonists. However, efficacy of granisetron needs to be evaluated in patients with delayed emesis.

Conclusion

Clinical trials have shown granisetron to be as effective as other serotonin antagonists and superior to traditional agents in preventing nausea and vomiting induced by emetogenic chemotherapeutic agents. The most common adverse effect of granisetron is headache which responds to analgesics. The use of single-dose granisetron has the advantage of streamlining the preparation and administration of antiemetic therapy in patients receiving cancer chemotherapy.

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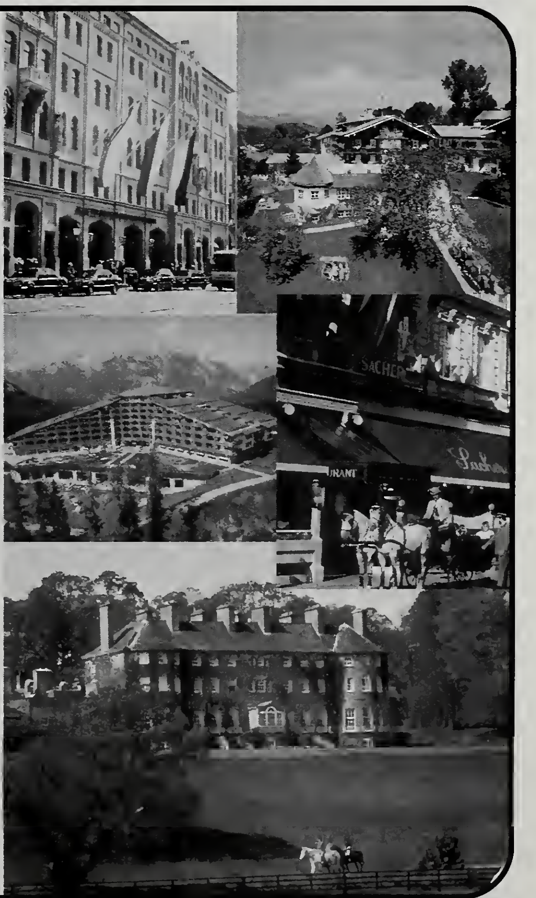

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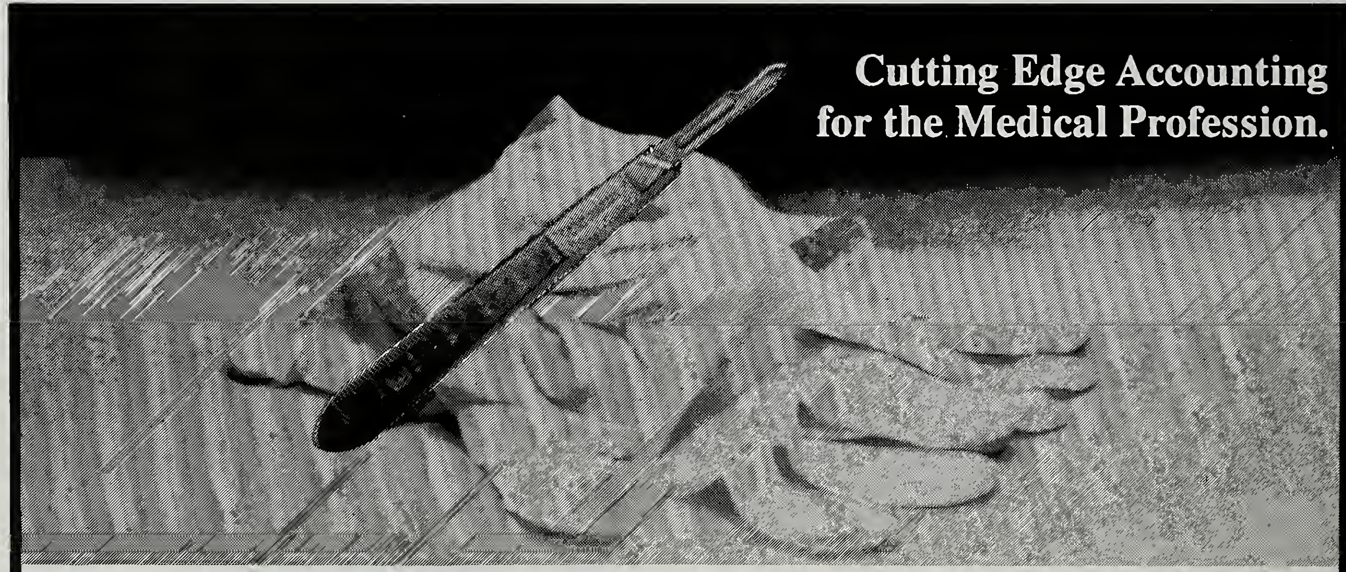

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Important Advances in Clinical Medicine

Physical Medicine and Rehabilitation

Murray E. Brandstater, M.D., Section Editor

The Council on Scientific Affairs of the California Medical Association presents the following epitomes of progress in physical medicine and rehabilitation. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and clinical importance. The items are presented in simple epitome, and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, researchers, and scholars to stay abreast of progress in medicine, whether in their own field of special interest or another.

The epitomes included here were selected by the Advisory Panel to the Section on Physical Medicine and Rehabilitation of the California Medical Association, and the summaries were prepared under the direction of Murray E. Brandstater, M.D., and the panel.

Female Athlete Triad

WOMEN have been trying to make themselves an equal force in athletics for the past decade. As this trend continues, physicians are caring more often for young women in competitive sports. Few differences exist in the types or even the frequency of injuries incurred by these women compared with men. So why should physicians, as caretakers of women athletes, view them differently than their male counterparts?

A new epidemic that is unique to female athletes is a triad of separate but interrelated disorders observed in adolescent and young adult women athletes. Consisting of disordered eating, amenorrhea, and osteoporosis, this problem is now called the "Female Athlete Triad." The problem is not new. Well-known elite athletes have come forward with their battle with this triad. Little attention has been paid to recognition, treatment, and prevention, however.

Women athletes are under increasing pressure not only to be strong competitors, but also to have the perfect body type and weight for their chosen sport. Both internal and external pressures from coaches, judges, and parents contribute. Any female athlete is at risk for this triad, but women who participate in endurance and performance sports, such as gymnastics, ballet, and long-distance running, where an athlete is judged on appearance or where low body fat is an advantage, are at highest risk for extreme weight-control behaviors. This, in turn, puts the athlete at substantial risk for the associated disorders of amenorrhea and osteoporosis. Each portion of this triad increases morbidity and mortality, but the three together are dangerous.

The concept of "disordered eating" is relatively new yet extremely common among female athletes, with reports that 15% to 62% practice pathogenic weight-control behaviors. A host of abnormal behaviors are reported, ranging from poor nutrition and restrictive eating at one end to the true eating disorders, anorexia nervosa and bulimia, at the extreme. Any of these disordered eating behaviors can be unhealthy, and an athlete need not fit the criteria of the *Diagnostic and Statistical Manual of Mental Disorders* for an eating disorder to be at risk for serious health problems.

The combination of restrictive eating, excessive training, and decreased body weight may all predispose an athlete to amenorrhea. Athletic amenorrhea is a much more complex phenomenon than once thought, with weight loss, the presence or absence of body fat, and emotional

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and physical stress all playing a role. The endocrine profile of an amenorrheic female athlete shows a long-term estrogen-deficient state similar to that of postmenopausal women. Because estradiol is extremely important to facilitate calcium uptake into bone, amenorrhea and the associated hypoestrogenic state may predispose female athletes to premature osteoporosis. The long-term effects of amenorrhea on future fertility are still unclear. The data suggest that the reproductive effects of athletic amenorrhea are reversible when the problem is treated.

Osteoporosis, the third part of the triad, refers to early bone loss and inadequate bone formation. Previously considered to be a disease of elders, in young amenorrheic women, 2% to 6% of bone mass can be lost per year, with a total loss of as much as 25% of total bone mass. A young athlete in her 20s may end up with the bone mass of a 60-year-old woman. This puts the athlete at a threefold risk for stress fractures. Of further concern is that bones gain mass only during the first three decades of life, with 95% of maximum density reached by age 18. These athletes are actually losing bone at a time in life when they need to be storing bone for the inevitable loss in later years.

To prevent or reduce the incidence of this triad, awareness and early detection are crucial. Preparticipation physical examination is the ideal time to identify athletes who already have or are at risk of the triad developing. Because female athletes will rarely bring up issues regarding diet or menstrual history, pertinent questions must be asked. It is often difficult to get an adequate history involving these sensitive issues simply by having an athlete answer a questionnaire. If possible, having a station where the athlete talks with a trainer, psychologist, or physician for a few minutes will elicit a more revealing history.

In addition, checking for subtle physical signs may identify an athlete who already has a disordered eating pattern. These athletes are not necessarily abnormally thin. They may have a decreased pulse rate of 40 to 50 beats per minute. Hypotension, hypothermia, lanugo hair, or a history of fainting can be clues to metabolic disturbances. Parotid swelling (chipmunk cheeks), erosion of tooth enamel or a large amount of dental work, and Russell's sign—finger and nail changes on the first and second digits of the dominant hand—are all signs of bulimia.

Rarely is an athlete excluded from participation for disordered eating or amenorrhea. Yet, these carry substantial possible consequences in psychiatric, endocrine, and skeletal well-being. If, as with other problems identified on an examination, athletes at risk for the triad are denied participation until further evaluation and treatment are initiated, the prognosis for recovery will be improved. It is important for physicians to encourage women to participate in sports in a healthy manner and to help eliminate the "win-at-all-costs" mentality.

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Diagnosing Tibial Stress Injuries in Athletes

AS many as 10% of all injuries seen in sports medicine clinics are stress fractures. Running is the most common activity causing these injuries, and the tibia is the most frequent site of injury. The term stress fracture is, however, not appropriate for most tibial stress injuries. Most of the injuries traditionally classified as stress fractures show no evidence of a fracture line or break in the continuity of bone, but exhibit various degrees of bone remodeling and stress reaction.

Radiographs are not a sensitive indicator for bony stress injuries. Magnetic resonance imaging (MRI) has been found superior to isotope bone scanning for diagnosing the degree of tibial stress injuries in running athletes. Magnetic resonance imaging with the fat-suppression technique can clearly identify four grades of tibial bony stress injury: periosteal inflammation associated with the shin splint syndrome, followed by progressive marrow edema, first on fat-suppressed T2-weighted images, then T1-weighted images, and ultimately a cortical stress fracture. Additional advantages of the use of MRI include its multiplanar capability, resulting in precise anatomic localization, lack of radiation exposure, and substantially less imaging time than triple-phase bone scan, although it is currently more costly.

Magnetic resonance imaging is recommended for grading tibial stress injuries in runners and other athletes to allow more accurate recommendations for rehabilitation and a return to impact activity. Athletes with a grade 1 stress injury can usually return to running on grass or soft dirt within three weeks and those with a grade 2 injury within six weeks. Those with grade 3 and 4 injuries are typically more symptomatic, with most having pain with daily ambulation. On physical examination, they have focal bone tenderness and increased pain with percussion, either directly over the involved bone or, in severe cases, at a distance from the site of pain. Athletes with a grade 3 injury are often unable to return to impact activity for nine weeks and those with a grade 4 injury for at least 12 weeks.

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Alcohol Use and Traumatic Brain Injury

TRAUMATIC brain injury and alcohol abuse are overlapping conditions that interact on several levels. Alcohol abuse, before and after injury, and the presence of alcohol in the blood ("positive blood alcohol level") at the time of the brain injury can complicate recovery. For these reasons it is important to screen for alcohol-related problems in patients with brain injuries and to use various motivational techniques described here to encourage survivors to abstain from alcohol for at least a year after injury.

Preexisting alcohol abuse is common among persons with traumatic brain injury, with as many as 58% reporting a history of alcohol abuse or dependence and 25% reporting previous treatment for substance abuse. Alcohol consumption data also suggest that persons with traumatic brain injury are more likely than their peers to have been heavy drinkers. Alcohol use is involved in many traumatic accidents, including those resulting in brain injury. One study showed that 46% of 2,657 trauma patients had a positive blood alcohol level at admission, 36% were intoxicated (a blood alcohol level $\geq$ 22 nmol per liter [100 mg per dL]), and 75% of those who were intoxicated also admitted a longer history of alcohol problems. Alcohol intoxication resulted in a greater likelihood of intubation, intracranial pressure monitoring, respiratory distress, and pneumonia. A positive blood alcohol level has also been found to be associated with a longer duration of agitation and coma and a lower cognitive status at discharge. Although alcohol use frequently declines after these incidents, its use or abuse continues for many people and may result in important complications. Because alcohol may lower the seizure threshold, its use after traumatic brain injury is thought to increase the risk of posttraumatic seizures. The acute effects of alcohol intoxication also mimic the types of impairments found in frontal lobe damage, which is one of the most common patterns of traumatic brain injury. Therefore, even moderate alcohol use may magnify the residual effects on balance, reaction time, and complex concentration. This magnification of impairments may underlie the consistent finding that alcohol use is associated with recurrent brain injuries. Finally, there is evidence that returning to drinking slows the process of recovery after brain damage.

The practical value of this information for clinicians has to do with motivating patients to cut down the amount they use or abstain from alcohol for at least the first year after injury. In the early aftermath of traumatic injury, a window of opportunity exists for health care professionals to promote changes in substance use. Many alcohol researchers now acknowledge that we have underestimated the potential for self-change without formal treatment or with only simple advice. In this regard, even brief feedback (especially personally relevant feedback) and specific advice to cut down on alcohol use have been found to be effective in a controlled study of trauma patients. Motivation to change addictive behaviors seems to be enhanced when a clinician adopts a position of nonconfrontation while eliciting the person's own concerns about alcohol use. This nonconfrontational style, called motivational interviewing, has been shown to reduce resistance to alcohol-related treatment. This approach seems especially appropriate for people who are not seeking help for alcohol problems and has been adapted for use in primary care practice.

The basic principles of motivational interviewing applied to patients with traumatic brain injury are as follows: Screen for a history of alcohol problems with measures such as the CAGE (Have you ever felt you ought to **C**ut down on your drinking? Have people **A**nnoyed you by criticizing your drinking? Have you ever felt bad or **G**uilty about your drinking? Have you ever had a drink first thing in the morning [**E**ye opener] to steady your nerves or get rid of a hangover?) or the Short Michigan Alcoholism Screening Test; follow up on positive results in patients with specific questions about alcohol use such as "What kind of drinker are you?" "What kind of effect does alcohol have on you?" "On a typical Monday, how much will you have to drink?" "Over how many hours?" "On a typical Tuesday?" Ask about health, then substance use. Tie comments about substance use to salient health concerns. Inquire about the subjective benefits of using alcohol or drugs, then the costs or adverse effects. Provide information and then ask, "What do you think?" Include information about specific risks related to traumatic brain injury. Provide this information to family or friends when possible. Make specific recommendations, but then leave the decision up to the patient. Ask the patient what is the next step or where he or she wants to go from here, and negotiate some means of checking on the patient's progress toward goals.

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Hemiplegic Shoulder Pain—Early Prevention and Rehabilitation

PREVENTION, early diagnosis, and treatment of shoulder pain are important to reduce morbidity and, later, to improve the quality of life in patients who have hemiplegic upper extremities after a stroke.

Shoulder pain is a common problem and usually begins early during the course of recovery. The prevalence of shoulder pain in hemiplegic patients has been reported to vary between 16% and 80%. A broad differential diagnosis must be considered. Possible causes include soft tissue lesions such as rotator cuff or capsular tears, adhesive capsulitis, arthritis, fracture, heterotopic ossification, reflex sympathetic dystrophy, thalamic (central) pain, and pain due to cervical radiculopathy or disease in the brachial plexus. At times patients with carpal tunnel syndrome present with a history of shoulder pain. Subluxation of the humeral head does not by itself directly cause pain but may exert traction stress to the periarticular soft tissue with subsequent pain. Patients with neglect have been reported to have a higher incidence of pain in the hemiparetic shoulder.

Preventing shoulder pain should be a goal during the early recovery phase. Positioning of the hemiplegic limb and judicial range-of-motion exercises should be started within 24 hours after a stroke. A sling may be useful in supporting a flaccid arm when the patient is walking. The shoulder should be maintained in an abducted and externally rotated position. When the patient is seated, a forearm trough or a lapboard can be attached to the wheelchair to help prevent subluxation. It is imperative to avoid the downward gravitational pull of the humeral head by properly handling the upper extremity during therapeutic range-of-motion exercises. Seating positions and prescriptions must be meticulously analyzed to maintain anatomic alignment and to prevent injury to the insensate limb. The overuse of slings may promote contractures. The use of biofeedback and functional electrical stimulation to shoulder-stabilizing muscles has been reported to decrease the incidence of shoulder subluxation and to promote the recovery of function.

If pain develops in a hemiparetic limb, the clinician must make a definitive diagnosis through a careful examination of the upper limbs. Differentiation should be made between soft tissue injury, reflex sympathetic dystrophy, and subluxation. In subluxation there is a palpable gap between the humeral head and acromion. Bicipital and supraspinatus tendinitis can be diagnosed after determining historically important aggravating factors followed by a thorough examination of the painful region. Brachial plexus injury should be considered in a patient who has atypical return of distal function. Electrodiagnostic studies may help to locate the site of lesion.

The early recognition of reflex sympathetic dystrophy and timely intervention are important to reduce morbidity. Reflex sympathetic dystrophy must be suspected when there is evidence of vasomotor instability, edema of the hand, tenderness over the metacarpophalangeal joints, or dystrophic skin changes. A triple-phase bone scan may show periarticular uptake in the wrist and metacarpophalangeal joints of the involved hand. Management includes range-of-motion exercises, optimal positioning of the upper limb, avoiding painful stimuli, and treating with nonsteroidal anti-inflammatory drugs when there is no medical contraindication. Other modalities, including transcutaneous electrical nerve stimulation or ultrasound therapy, may help to decrease pain and increase sensory feedback during recovery. A short course of oral steroids or the administration of a stellate ganglion block may decrease pain and symptoms. Better results have been reported in patients with positive bone scans who have completed a course of corticosteroids.

Central pain is rare, and the exact pathophysiology remains uncertain. Pain is often burning in character and is associated with an unpleasant sensation of tingling or "pins and needles." Other pain descriptions have been reported. Frequently the pain is spontaneous or evoked by touch. Central pain is difficult to treat. The use of narcotic analgesics frequently provides inadequate relief. Tricyclic antidepressants have been reported to have a beneficial effect. Other treatment alternatives include sympathetic blockade, guanethidine block, and neurosurgical ablative procedures.

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Acute Ankle and Foot Injury—Guidelines for Radiography

IN this decade of increasing litigation, many clinicians faced with acute ankle and foot trauma automatically take radiographs in search of occult fractures. This practice raises costs and causes substantial delays in care. Recent prospective controlled studies of adult patients have identified aspects of a medical history and physical examination that correlate well with the presence (and also absence) of ankle or foot fractures. Coined the "Ottawa ankle rules," validated guidelines are derived from many methodologic standards. Because of the current low yield of ankle and foot radiographs—15% of all such x-ray films reveal fractures—the stage is set for reliable and cost-effective management of local ankle and foot trauma.

An ankle radiographic series is always indicated if an interview with the patient elicits a description of pain over the malleoli and also one of the following: inability to bear weight both immediately and on first evaluation by a physician (weight bearing is tested by asking the patient to take four consecutive steps without assistance); bone tenderness on palpation of the distal 6-cm posterior edge (tip) of the medial malleolus; or bone tenderness on palpation of the distal 6-cm posterior edge (tip) of the lateral malleolus. In related studies, this approach has detected all notable ankle fractures, allowing an examiner to forgo radiographs in 34% of patients.

A radiographic series of the foot is always indicated if the interview elicits a subjective complaint of pain in the midfoot zone and also one of the following: inability to bear weight both immediately and on first evaluation by a physician; bone tenderness on palpation of the navicular bone; or bone tenderness on palpation of the base of the fifth metatarsal. In related studies, the potential to reduce the number of foot films is 30% without increasing the chance of missed fractures.

An ankle or foot x-ray film series is also recommended when assessment of a patient is difficult because the patient is intoxicated or has a head injury, multiple painful injuries, or diminished sensation due to a neurologic deficit. Combined with proper follow-up for patients who do not improve within five to seven days, these principles can virtually eliminate the possibility of a missed fracture.

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Influence of Disability on Pregnancy and Motherhood

IN the past, professionals often discouraged motherhood in women with disabilities. Innovative approaches have recently emerged that acknowledge each woman's understanding of her bodily functions, respect the ingenuity of other mothers who have adapted to similar disabilities, and integrate their unique blend of experience with the knowledge and skills of primary care physicians and disability specialists.

All medical services, childbirth, and exercise classes are provided in architecturally accessible offices, clinics, and hospitals. Examining tables have the potential to be lowered for easy transfer. Assistance is available for transfers, donning and doffing prostheses and braces, and for self-catheterization. A wheelchair-accessible scale is used, when required, to monitor weight during the course of pregnancy. When home visits and home birth are used, environmental accessibility is almost always assured.

Because the lithotomy position is difficult for many women with limited mobility, options are provided for pelvic examination without stirrups, in the supine, knee-chest, or side-lying position, or in a reclining wheelchair. Autonomic hyperreflexia—sudden, severe hypertension due to exaggerated sympathetic discharge in women with spinal cord injuries at or above T-6—is likely to be less severe if the woman is in a semisitting position for a pelvic examination. The application of anesthetic gel to the vagina and speculum may further lessen the chances of severe hyperreflexia.

Consideration is given to the interaction between the pregnancy and the disability. The fatigue of pregnancy can be especially severe for women with rheumatoid arthritis, multiple sclerosis, or chronic fatigue syndrome; nausea and vomiting may be particularly difficult for women with limited mobility; and women with respiratory insufficiency may have progressive difficulty breathing as pressure from the uterus increases, requiring ventilatory support during late pregnancy or labor. If bladder control is a problem before the pregnancy, it is likely to worsen as the growing fetus begins to press on the urinary bladder. Supplemental iron may cause severe constipation in women with neurogenic bowel problems. Nutritional assessment is needed to consider each woman's unique energy requirements, as well as the calories required for pregnancy and lactation. As the abdomen enlarges and the center of gravity shifts, there may be a need for a new or larger wheelchair, additional adaptive equipment, or extra personal assistance.

For women with visual impairments, detailed descriptions of labor and delivery are helpful. All staff members must be alerted to introduce themselves to the woman by name and function at each interaction. When a woman has a hearing impairment, it is important for office and hospital staff to ascertain what method of communication is most effective for her—writing, wearing a hearing aid, lip reading, or using a sign-language interpreter. To facilitate lip reading, a transparent mask can be used. At the woman's request, a family member, friend, or sign-language interpreter should be permitted to assist communication at all times, including during labor and delivery. Because few obstetricians have experience with patients with disabilities, it is important for the obstetrician to confer with the woman's disability specialist.

Touring the birth facility enables prospective mothers to evaluate whether the environment will meet their needs and, if not, what adaptations would be helpful. Women with hearing or visual impairments may do better in a room within direct sight or sound of the nurses' station. Women with mobility impairments may require electric controls on the hospital bed, a special mattress, or an overhead trapeze bar. For wheelchair users, toilets and showers must be accessible and adapted for safety and effective functioning. Caution should be exercised with routine procedures, such as the insertion of an intravenous line in the intact arm of a hemiplegic woman, as this may interfere with bed mobility and wheelchair transfers.

The recognition of the onset of labor may be difficult in women with impaired sensory innervation to the uterus (T-10 to T-12). Atypical or unexpected symptoms may occur such as abdominal or leg spasms, shortness of breath, urinary frequency every few minutes, or a headache with each contraction. Finding a good position for labor can be challenging. Decubitus ulcers can be avoided by alternating the sitting, reclining, and side-lying positions and by using padding. A woman may stay in her wheelchair until she reaches the delivery room. Although muscle weakness may make it impossible for the woman to assist in pushing the baby out, paralysis is not an indication for cesarean delivery, which should be considered only when a valid obstetrical indication exists. Hypotonia of the pelvic floor musculature may actually facilitate vaginal delivery.

Perineal distension, vaginal instrumentation, augmentation with oxytocin, amniotomy, and the labor itself may precipitate autonomic hyperreflexia in women with spinal cord injury at the T-6 or higher level. This can lead to hypertensive encephalopathy, cerebrovascular accident, intraventricular and retinal hemorrhage, and death. Uteroplacental vasoconstriction may result in fetal hypoxemia. Therefore, continuous monitoring of maternal blood pressure and cardiac rhythm is mandatory during labor in all patients at risk for autonomic hyperreflexia. In women with respiratory muscle weakness, blood gas levels should be evaluated before labor and pulse oximetry monitored during labor. Epidural or spinal anesthesia extending to the T-10 level is an effective preventive measure as labor progresses. If autonomic hyperreflexia occurs before or despite the use of regional anesthesia, hypertension may be treated with rapid-onset antihypertensive agents such as sodium nitroprusside or nitroglycerin, ganglionic blocking agents (trimethaphan camsylate), adrenergic blocking agents (guanethidine sulfate), or a direct vasodilator (hydralazine hydrochloride). During the second stage of labor, delivery can be expedited by using forceps or vacuum extraction. If dysreflexia cannot be controlled, a cesarean delivery under adequate anesthesia may be required. Nonabsorbable sutures should be used for an episiotomy in women who are insensate in the perineum or spend their day sitting in a wheelchair. The wound should be examined frequently for breakdown.

The medical aspects of disability should not take precedence over the focus of pregnancy. Nightmares— for example, that a baby may be born without a spinal cord—can be relieved by providing information and reassurance that an acquired disability such as spinal cord injury cannot be transmitted to the baby. Through planning and organization, the woman's self-confidence can be affirmed and her abilities enhanced for the care of a dependent infant.

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Birth Brachial Plexus Injury

BIRTH brachial plexus injury occurs in approximately one per 1,000 live births in the United States. The most frequently involved level of lesion is C5-6, causing Erb's palsy. The next most frequent is a combined palsy that includes C-7. Klumpke's paralysis, involving C-8 to T-1, is the least frequently seen. Most infants are large and born to multiparous mothers. Most (50% to 90%) of these lesions resolve spontaneously.

Evaluating a case of birth brachial plexus palsy can include physical, electrodiagnostic, and radiographic examinations. Radiographic examinations include x-ray films of the humerus and clavicle to exclude fractures, with controversy over the benefit of magnetic resonance imaging or computed tomography. Electrodiagnosis consists of nerve conduction studies, both motor and sensory, electromyography, and possibly somatosensory evoked potentials. Which muscles and nerves to examine should be carefully planned, depending on the areas of deficit. The somatosensory evoked potentials are done infrequently because infants must be sedated for the study. Instead, the proximal portions of the nerve are studied using F waves and H reflexes in nerve conduction studies. In an insensate arm, the presence of sensory nerve action potentials indicates an avulsion and that the lesion is proximal to the dorsal root ganglion. Fibrillations in paraspinal muscles may also indicate a preganglionic lesion, as these muscles are innervated by the posterior primary rami (as opposed to anterior primary rami innervating the arm). Fibrillations are not always present, however, and the overlap of levels of innervation also makes interpretation uncertain. The physical examination is done by observing any spontaneous use of the arm, positioning, the use of primitive reflexes, and positive and negative stimuli (offering candy and sharp or dull testing, respectively).

The initial treatment approach begins with occupational therapy. Parents are immediately taught range-of-motion exercises and maximal positioning of the involved upper extremity. Range of motion is used for maintaining mobility of the joints and to avoid contractures. This is of utmost importance whether the patient has spontaneous resolution of symptoms or if there is a need for surgical therapy in the future. Range-of-motion exercises in patients with Erb's palsy particularly emphasize abduction and external rotation of the shoulder along with supination of the forearm because of the classic adducted, internally rotated position of the arm with pronation of the forearm. In addition, extension and flexion of the elbow are done. In an infant with Klumpke's paralysis, the emphasis is on wrist and finger exercises and elbow extension range of motion. Splinting is used if there is severe wrist drop, particularly with unopposed strong wrist flexor muscles. Many infants, particularly babies with an insensate limb, require various forms of stimulation to increase the awareness of the involved extremity. In such a case, a bracelet with bells or other noise-making objects are frequently used so that the baby can "hear" the presence of the involved arm. Small toys may also be attached to a bracelet on that arm to improve attention to the limb.

It is important that any active motor function present in the involved extremity be used to its fullest. Parents are taught by a therapist how to enhance any motor function present in the limb, which varies depending on the level of injury. In a C5-6 injury, if only the hand has intact motor function, the arm must be positioned so that the hand can be actively used. If the proximal portion of the arm is functioning, but not the hand, then the child may use the arm for carrying large objects such as a stuffed animal or a beach ball, using the involved or both extremities. It is important to have the child perform these activities so that he or she learns to do some actions using both extremities and does not go through early developmental stages learning to do everything with one hand. If this occurs, it is extremely difficult to get the child to use both hands in the future, even if there is excellent motor and sensory return.

Problem areas noted in children with birth brachial plexus injury include the classic internal rotation and adducted contracted position of the arm of a child with C5-6 palsy who has had no range-of-motion exercises. With these exercises, there is a risk of dislocating the shoulder due to the shallow glenoid cavity and the minimal musculature present to hold the humerus into the shoulder. With range-of-motion exercises of the forearm to supinate, there is also a risk of dislocating the radial head. With no therapy or exercises, there may be contractures, muscle atrophy, and possible lack of use of the extremity, even if there is future motor return. Problems may include cosmetic problems with contractures, limb length discrepancy with the involved arm being shorter than the other, and winging of the scapula, although this may be less noticeable as a child ages. Skin ulcerations may occur in an insensate limb from injury or even from children biting themselves. Pain is not usually present, unlike with acquired brachial plexus injuries in adults.

In babies without spontaneous resolution of their brachial plexus palsy, a surgical exploration can be considered after four months of age. Opinions of the optimal time for surgical interventions vary from three months to nine months of age. The brachial plexus is surgically exposed, electrodiagnostic studies are done (somatosensory evoked potentials and nerve conduction studies), and then a neurolysis (removing scar tissue on the nerve) and, in some children, a nerve graft are done. Improvements are noted from six months to two years after the operation. In children older than three years who have substantial deficits, tendon or muscle transfers can be done to improve function. Tendon transfers are most commonly used about the wrist. Muscle transfers can be used to provide elbow flexion or extension and shoulder abduction and external rotation. The child must be able to cooperate with intensive therapy after a muscle transfer to learn to use the new muscle function.

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Diphtheria Epidemic— New Independent States of the Former Soviet Union, 1990-1994*

ALTHOUGH diphtheria was controlled for approximately 30 years after the institution of childhood vaccination with diphtheria toxoid in the late 1950s, epidemic diphtheria has reemerged in the New Independent States (NIS) of the former Soviet Union[1,2] (Figures 1 and 2). The epidemic began in 1990 in the Russian Federation and spread to Ukraine in 1991 and, during 1993 to 1994, to 12 of the 13 remaining NIS. In most affected countries, the incidence rate of reported diphtheria has increased twofold to 10-fold each year. This report summarizes data provided to the World Health Organization (WHO) about diphtheria in the NIS during 1989 to 1994.*

Overall, reported cases of diphtheria in the NIS increased from 839 in 1989 to 47,802 in 1994 (Figure 1). In 1994, a total of 1,746 persons died; case-fatality rates ranged from 2.8% (Russian Federation) to 23.0% (Lithuania and Turkmenistan).

In the Russian Federation, reported diphtheria cases increased from 603 in 1989 (0.4 per 100,000 population) to 15,229 (10.3) in 1993, then increased 161% to 39,703 (26.6) in 1994; a total of 1,104 (2.8%) persons died. The epidemic has progressively spread to involve all 89 administrative regions. Throughout the epidemic, approximately 70% of cases have been reported among persons aged ≥15 years. The highest age-specific incidence rates were among persons aged four to 10 years, 15 to 17 years, and 40 to 49 years. Reported nationwide coverage with a primary series (three doses) of diphtheria toxoid among children aged 12-23 months increased from 72.6% in 1992 to 79.2% in 1993, but coverage remains low (<60%) in some regions. During 1992 to 1993, at least 90% of children aged ≤5 years had received a primary series with diphtheria and tetanus toxoids and pertussis vaccine (DTP) or pediatric (DT) or adult (Td) formulation diphtheria and tetanus toxoids, and approximately 80% had received at least one booster. Up to 50% of infants in some areas may have received a primary series with Td rather than DTP or DT.

In Ukraine, reported cases increased 27-fold, from 109 in 1990 to 2,990 (5.7 per 100,000) in 1994; 111 (3.7%) persons died. In 1994, 80% of cases occurred among persons aged ≥15 years. In Belarus, reported cases increased 97%, from 120 in 1993 to 236 (2.3) in 1994. In Moldova, reported cases increased 10-fold, from 35 in 1993 to 372 (8.5) in 1994; 19 (5.1%) persons died. In Latvia, reported cases increased 21-fold, from 12 in 1993 to 250 (9.4) in 1994 and, in Lithuania, from eight in 1993 to 39 (1.0) in 1994. In Estonia, seven cases (0.4) were reported in 1994.

In Tajikistan, reported cases increased 180%, from 680 in 1993 to 1,907 (31.8 per 100,000) in 1994. Most cases were reported from the southern region of Kurgan Tyube, which borders Afghanistan. For other central Asian republics, case counts for 1994 were Kazakhstan, 489 (2.8); Kyrgyzstan, 303 (6.5); Turkmenistan, 61 (1.5); and Uzbekistan, 232 (1.0). These totals represent increases of twofold to 20-fold over 1993. Approximately 50% of cases in these countries have occurred among persons aged ≤14 years.

In Georgia, 294 cases (5.4 per 100,000) were reported in 1994, a 10-fold increase over 1993. Forty-two (14%) persons died, and 43% of cases occurred among persons aged ≥15 years. In Azerbaijan, 685 cases (9.2) were reported in 1994, compared with 141 in 1993. Armenia reported no cases during 1991 to 1993 but 36 (1.0) cases in 1994.

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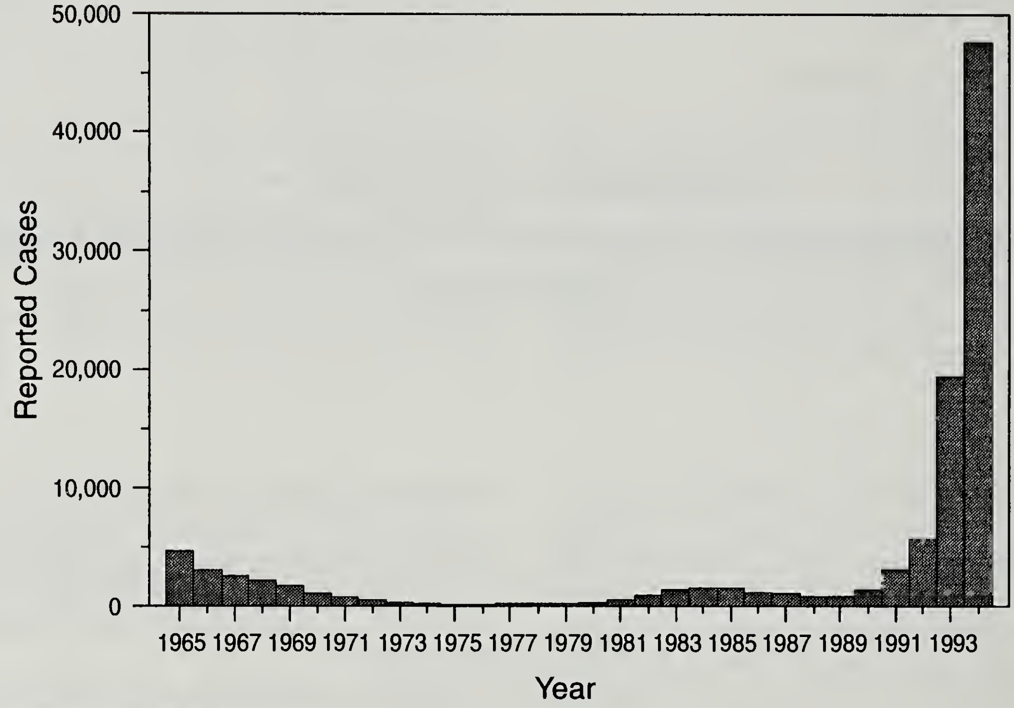
*Data for 1994 are provisional.

Figure 1—Reported number of diphtheria cases—New Independent States of the former Soviet Union, 1965-1994*



*Data for 1994 are provisional.

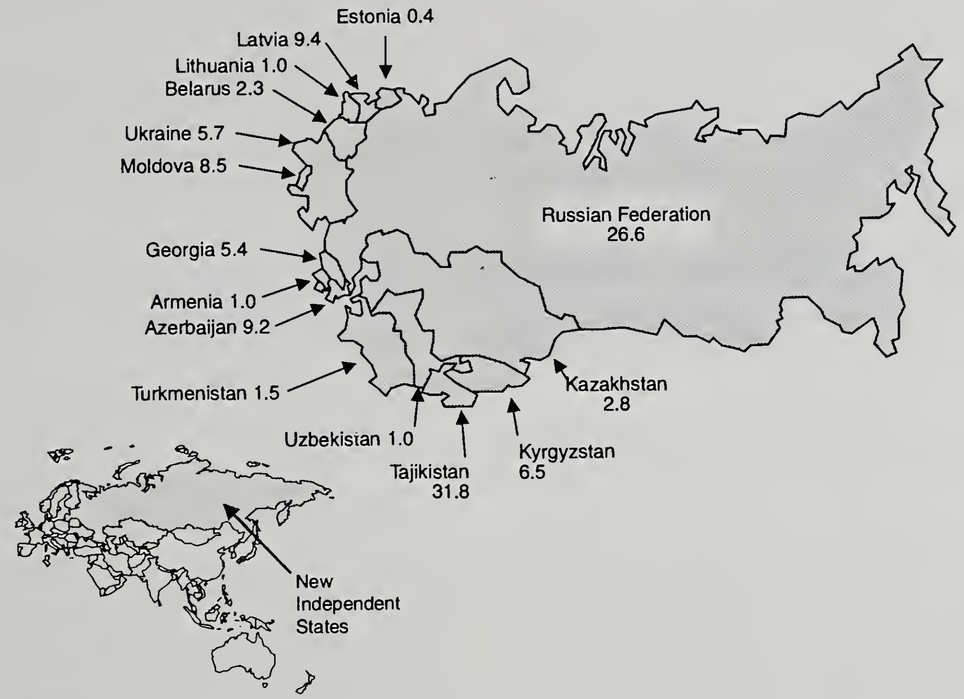
Source: World Health Organization.

Reported by: Regional Office for Europe, World Health Organization, Copenhagen. Global Program on Vaccines and Immunization, World Health Organization, Geneva. Regional Office for Eastern Europe and Central Asia, United Nations Children's Fund, New York and Geneva. Child Survival Unit, United Nations Children's Fund, New York. Childhood and Respiratory Diseases Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases; International Health Program Office; Child Vaccine Preventable Disease Branch, Division of Epidemiology and Surveillance, National Immunization Program, CDC.

Editorial Note: WHO considers the rapidly expanding diphtheria epidemic in the NIS an international public health emergency. In the Russian Federation, the epidemic has intensified each successive year. In the central Asian and Transcaucasian republics, epidemic diphtheria is established in all eight countries; in some of these countries, many cases have occurred among refugees or persons displaced by internal conflict. Previous reports of diphtheria epidemics underscore the potential for further increase in the magnitude of this epidemic.[3]

Although the reasons for the diphtheria epidemic in the NIS are not fully understood, one important factor is the presence of a large number of susceptible children and adults—which enabled introduction or reemergence of toxigenic strains of *Corynebacterium diphtheriae*. Spread of the organism may have been facilitated by crowding and population migration resulting from the dissolution of the Soviet Union. In addition, adequate control measures (particularly aggressive mass vaccination in affected areas) were not implemented during the early phase of the epidemic. Increases in the number of susceptible children in the NIS probably resulted from a combination of low vaccination coverage in many areas and inappropriate primary vaccination of substantial numbers of infants with Td, a formulation for adults containing decreased amounts of diphtheria toxoid. The existence of large numbers of susceptible adults is a new phenomenon in the vaccine era. In the prevaccine era, most persons acquired immunity to diphtheria naturally before adulthood through exposure to *C. diphtheriae*. Following the introduction of childhood vaccination with diphtheria toxoid, circulation of toxigenic *C. diphtheriae* decreased substantially. In

Figure 2.—Reported incidence rate* of diphtheria—New Independent States of the former Soviet Union, 1994.



*Per 100,000 population.

addition, vaccine-induced immunity wanes over time unless periodic boosters are administered. Serologic studies in the NIS, Western Europe, and the United States indicate that 20% to 60% of adults aged ≥20 years are susceptible to diphtheria .[4-7]

Lack of effectiveness of diphtheria toxoid is not considered to be an important contributing factor for this epidemic. Recent assessments of vaccine effectiveness in children conducted in the Russian Federation and Ukraine have documented high clinical effectiveness of diphtheria toxoid produced in the Russian Federation.

A plan formulated jointly by WHO and the United Nations Children's Fund (UNICEF), in collaboration with CDC, the U.S. Agency for International Development, and the International Federation of Red Cross and Red Crescent Societies, has outlined the strategies necessary to control the diphtheria epidemic in the NIS. This plan was approved in January and February 1995 by representatives of the affected countries. Key elements of the plan are to achieve and maintain high levels of routine childhood vaccination with diphtheria toxoid (ie, ≥95% coverage with four doses of DTP by age two years in all districts and the same levels for booster doses according to national vaccination schedules) and to rapidly vaccinate ≥90% of adolescents and adults with Td[8,9] in all areas of the NIS affected by the epidemic. Because of widespread transmission among the entire population of the NIS, attempts to control the epidemic through vaccination of targeted subgroups (eg, adults in selected occupations and children) have not been effective.

In 1994, at least 20 imported cases of diphtheria were reported in countries in Europe, including Bulgaria, Finland, Germany, Norway, and Poland. This demonstrates the potential for the diphtheria epidemic in the NIS to spread to neighboring countries in Europe, the Middle East, and Asia. Although no cases have been directly imported into the United States, CDC has received reports of two cases of diphtheria among U.S. citizens who reside in or who traveled to the NIS, and considers the epidemic to pose a risk for importation into the United States.

This report underscores the importance of maintaining high levels of diphtheria immunity among the total populations of the United States and other countries, regardless of whether international travel is planned. The Advisory Committee on Immunization Practices recommends that all children receive a routine series of five doses of DTP (or DT if pertussis vaccine is contraindicated) with doses at ages two, four, six, and 12 to 15 months and four to six years; Td boosters should then be administered every 10 years.[10] For persons aged 27 years who have not been previously vaccinated against-diphtheria, the primary series consists of three doses of Td, with intervals of one to two months between the first two doses and six to 12 months between the second and third doses. Persons traveling to areas with diphtheria activity should have completed the primary series and should have received the most recent dose of vaccine (either primary series or booster) within the previous 10 years.

Control of the epidemic in the NIS requires immediate efforts to raise levels of immunity through extensive mass vaccination of adolescents and adults. Shortages of vaccine, antitoxin, and antibiotics exist in the NIS (except the Russian Federation); these needs should immediately be addressed through coordinated efforts of international public health and donor agencies. An Interagency Immunization Coordinating Committee was convened in 1994 and is scheduled to meet again in April 1995 to coordinate donor activities in support of disease control and primary vaccination of children in the NIS.

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Influences of American Philosophy and History on the Practice of American Medicine

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FACTORS that affect the manner in which physicians practice medicine include the effect of training, medicolegal considerations including the practice of defensive medicine, supplier-induced demand including financial considerations, community standards, and the need to mitigate uncertainty in clinical decision making.[1] In addition, the moral fabric of the physician is clearly an influence. Cultural factors that affect physicians' mode of practice, which in turn are influenced by the historical experiences and dominant philosophic traditions of the specific culture, have received minimal attention. Herein this essay explores factors of the American philosophic tradition and historical experience that influence the manner in which American medicine is practiced. A study of American philosophy and history sheds light on reasons for some of the current problems of American medicine, including its emphasis on treatment rather than observation, probable overuse of expensive technology, and resulting high costs.

Influences of American Enlightenment Philosophy on the Practice of American Medicine.—The American Enlightenment, offshoot and continuum of the European Enlightenment, provided the philosophic principles that guided the United States during its infancy and still profoundly influence the country today. Enlightenment thought revolved

> around three basic concepts—reason, experience and progress; and three major strands of thought: that one must turn to reason for whatever one believes; that experience ... supplies the basic materials with which reason must work; that ... man, enlightened by reason and lightened by improved tools and inventions, may entertain hope of progress to more humane conditions. [2]

Although the hopeful seeds of the Enlightenment were sown in Europe, they germinated and flourished in the fertile soil of the New World. Eighteenth-century French economist Robert Jacques Turgot could say that "this people [of America] is the hope of the human race. It may become the model."[3a] Turgot's contemporary, Marquis de Condorcet, arguably the preeminent French Enlightenment philosopher alive at the outbreak of the French Revolution in 1789, could "submit the example of America as evidence of the reality of the idea of progress, the highest state that Civilization had yet attained."[3a]

Historian Henry Steele Commager concluded his book *The Empire of Reason: How Europe Imagined and America Realized the Enlightenment* as follows:

> [The American philosophers] did not need to accustom themselves to failure, hoping that posterity would vindicate them; they could take success for granted, and be confident that posterity would remember them gratefully—as indeed it has. As they did not construct Utopias because America was itself Utopia, so they did not write treatises on Happiness or on Progress, confident that these could be taken for granted. [3b]

American Enlightenment thought provided the expectation that new inventions (or technologies) would be better than those they replaced. Benjamin Franklin, one of the apostles of American Enlightenment thought, provided the following comments:

> ...I have long been impressed by the invention and acquisition of new and useful utensils and instruments, that I have sometimes almost wished it had been my destiny to be born two or three centuries hence. For invention and improvement are prolific, and beget more of their kind. The present progress is rapid. Many of great importance, now unthought of, will before that period be produced; and then I might not only enjoy their advantages, but have my curiosity gratified in knowing what they are to be....[4]

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John Adams' thoughts about new technologies paralleled those of Franklin:

> I am bold to say that neither you nor I will live to see the course which the 'wonders of the times' will take.... The result in time will be improvements, and I have no doubt that the horrors we have experienced for the last forty years will ultimately terminate in the advancement of civil and religious liberty, and amelioration in the condition of mankind. For I am a believer in the probable improvability, and improvement, and ameliorability and amelioration in human affairs....[5]

In contemporary American medicine, that philosophic concept has had far-reaching influence, manifested by a lack of critical rigor with which new diagnostic and therapeutic technologies are assessed before widespread dissemination.

American medical technology advances more rapidly than our understanding of how best to use it. Only within the past 15 years have data become evident to provide guidance in the appropriate use of such basic studies as complete blood cell counts, chest radiography, and electrocardiography.[6-19] The appropriate use of more sophisticated technologies is understood even less and, when viewed through a cultural context that emphasizes the hopeful principles of the Enlightenment, the process of understanding the best means for using a new technology may be undervalued. Enlightenment thinking has facilitated the development and subsequent wide dissemination of new technologies before the applications thereof have been assessed critically. In view of an Enlightenment perspective, no need exists for a critical evaluation of these new technologies; their novelty is evidence of their superiority.

For instance, external carotid-to-internal carotid bypass surgical procedures had relatively widespread support until a well-designed clinical trial showed that patients who had undergone such procedures had worse outcomes than did those who were managed medically.[20] Pulmonary artery catheters have not been shown to improve patient outcomes associated with any nonsurgical illness,[21] but they are still widely used, despite their known (occasionally fatal) risks. Percutaneous transluminal coronary angioplasty is clearly indicated only for symptomatic improvement in patients with the appropriate coronary anatomy whose symptoms are inadequately controlled with medical therapy; no data exist to support the superiority of angioplasty relative to pharmacologic therapy in decreasing mortality in patients with chronic coronary disease.[22] The pneumococcal vaccine, although widely recommended for elderly patients and those with chronic disease, was "released without adequate testing" and "remains of uncertain benefit."[23] The best study, methodologically, of its efficacy involved 1,150 placebo recipients and 1,145 recipients of 14-antigen vaccines; no difference was noted between the two groups in the frequency of pneumococcal pneumonia.[24] A medical community uninfluenced by the hopeful values of the Enlightenment would likely have required verification of efficacy of these and other technologies before they were widely disseminated.

The values of the Enlightenment are also involved in the current controversy about the use of serum prostate-specific antigen (PSA) as an adjunctive means for diagnosing prostate-confined prostate cancer; the hope is that deaths from prostate cancer can be decreased. Such a concept, although endorsed by many physicians, awaits validation.[25-28] The prevalence of clinically apparent prostate cancer in men 60 to 70 years of age is only about 1%, whereas more than 40% of men in their 60s who have normal findings on rectal examinations have histologic evidence of the disease.[29] The claims for cures of prostate cancer because of early detection with PSA must be scrutinized in view of lead-time bias, in which survival with the disease may seem to be longer because of diagnosis early during the preclinical phase and, perhaps more important, in view of duration bias, which demonstrates that the probability of a disease being detected during the preclinical phase by a screening test is directly proportional to the duration of the preclinical phase.[29] With incorporation of this concept, apparent cures may be effected because of the eradication of disease destined to remain indolent. Until data are available, however, the hope from Enlightenment philosophy is instilled within us that widespread screening with PSA will indeed lead to a decrease in deaths from prostate cancer.

Studies that report the efficacy of drug therapy are also influenced by the hopeful values of Enlightenment philosophy. Generally, conclusions from such studies are presented as relative risk reductions, which may seem favorable for the drug being studied, rather than absolute risk reductions or the number of patients that must be treated in order to prevent one adverse outcome, which may suggest a lesser benefit. For instance, the widely circulated results of the Helsinki Heart Study, in which a 34% relative risk reduction in myocardial infarction and cardiac death was observed,[30] become much less impressive when one knows that 77 patients had to be treated for five years in order to prevent one myocardial infarction (or that approximately 200,000 doses of gemfibrozil were ingested to prevent one fatal or nonfatal myocardial infarction).[31] Researchers want to present the findings of their work in the most favorable manner. Enlightenment philosophy, however, influences the manner in which drug therapy studies are evaluated; editors unaffected by that philosophy would, when analyzing clinical trials, likely focus more on absolute than on relative risk reductions.

The ramifications of this bias in favor of new technologies on the practice of American medicine are profound. The study of American philosophy sheds light on the reasons why American physicians practice medicine the way they do. The study of American history provides similar illumination.

Influences of American History on the Practice of American Medicine.—The history of America is one of people on the move and of the conquest of the western frontier, an experience uniquely American. Gerald F. Kreyche, who has proposed a philosophy of the American West, offered the following comments: "... the United States was a nation on the move and showed little concern for the *status quo,* since the nation's needs were nearly all dynamic. Never did the nation pause to reflect on what it had accomplished, so frenzied were its efforts to effect further change and further growth."[32] During the settlement of America, action was more highly valued than deliberation. Although the influences of the westward migration on the frontier have been tangible, the persistent effects of a frontier history on contemporary American culture have been less easily perceived. Contemporary historian Martin Ridge noted that "the experience of the American people as they moved west...most influenced the nation's institutions."[33] "The influence of the frontier has been the strongest single factor in American history,"[34] remarked early 20th-century historian Frederic Logan Paxson.

Historian Frederick Jackson Turner first suggested that idea in a celebrated lecture given one century ago, in which he asserted that, by "confronting and changing the frontier, the American in turn was changed and formed by it."[35] Ray A. Billington, Turner's biographer, alluded to the influence of Enlightenment philosophy, in addition to the effects of the western frontier, on the development of the American psyche with the following comments:

> Rarely do other peoples display such indifference toward intellectualism or aesthetic values; seldom in comparable cultural areas do they cling so tenaciously to the shibboleth of rugged individualism. Nor do residents of non-frontier lands experience the same degree of heady optimism, the blind faith in the future, the belief in the inevitability of progress that is part of the American Creed. These were pioneer traits, and they have become part of the national heritage.[36]

British historian and statesman James Bryce praised the exuberance of America's West, "already living in the future with today only half finished and yesterday already forgotten."[37]

The conquest of the frontier required people who, when given the choice, preferred action over deliberation. The influences of America's frontier history are still profound in the late 20th century, manifested by appetites for action-oriented television and movies and preferences for action-oriented recreational activities. Such influences affect the practice of American medicine during the current era. Physicians are often more comfortable doing than observing. A cardiologist trained in catheter-directed coronary revascularization, when confronted with single-vessel coronary heart disease manifested by an 80% proximal circumflex lesion in a patient admitted with new-onset angina, may have more confidence in dilating the lesion than in trying medical therapy; the influence of the American frontier, with its preference for action over deliberation, affects the decision. Likewise, a primary-care physician, when examining a patient with a low-grade fever, coryza, and a nonproductive cough, often seeks any excuse to prescribe an antibiotic instead of supportive therapy alone, another outcome of the American frontier influence.

Obstetricians continue to use electronic fetal monitoring during labor despite data that show that such monitoring confers no demonstrable benefit to the fetus yet increases the risk of operative delivery to the mother.[38] Once again, the influences of a frontier history encourage a physician to act rather than to observe. Neurologists commonly use heparin therapy for patients with partial stable stroke,[39] despite the absence of evidence suggestive of any efficacy there-from.[40-45] In facing such a devastating condition as stroke, physicians would rather act and prescribe anticoagulant therapy than give aspirin and observe. Before the results of the Cardiac Arrhythmia Suppression Trial[46] were published, one appropriate consideration was to attempt to suppress asymptomatic ventricular ectopic beats pharmacologically; when a physician encountered a patient who was having episodes of nonsustained ventricular tachycardia, action often seemed preferable to observation. The phrase that surgeons hear during their training, "When in doubt, take it out," although not intended as an explicit directive for patient care, is informative of the practice preferences of physicians trained in a society that values action more than observation.

The effects of the frontier have extended into the late 20th century to influence physician fees and, thus, the allocation of physicians to primary-care and procedure-oriented specialties; the value of action over observation has been codified in higher reimbursement rates for procedures than for cognitive services. Our frontier heritage may even imperil our efforts toward health-care reform that would lead to substantial spending restraint. Princeton sociologist Paul Starr has argued that a major goal of health-care reform should be to encourage conservative practice styles that favor observation more than treatment or diagnostic testing except when the last two-mentioned topics are clearly indicated.[47] Because American physicians—and their patients—are conditioned to place higher value on action than on observation, changing practice patterns in such a manner will be difficult indeed.

Conclusion.—Enlightenment philosophy continues to condition us to accept new medical technologies relatively uncritically. Indeed, we may have become so thoroughly shaped by the assumptions of technology and our faith in progress that we are incapable of transcending these assumptions in order to assess them critically.[43-50] Being aware of the faith in progress that permeates the culture of American medicine is, however, a necessary first step toward an accurate examination of that culture.

Our frontier history—as Turner noted when he remarked that the frontier affected people as much as people influenced the frontier—continues to condition society to place a high value on action as it continues to influence physicians to favor action over observation. A study of the historical and philosophic factors that affect the practice of medicine may lead to the development of constructive changes in American medical practice.

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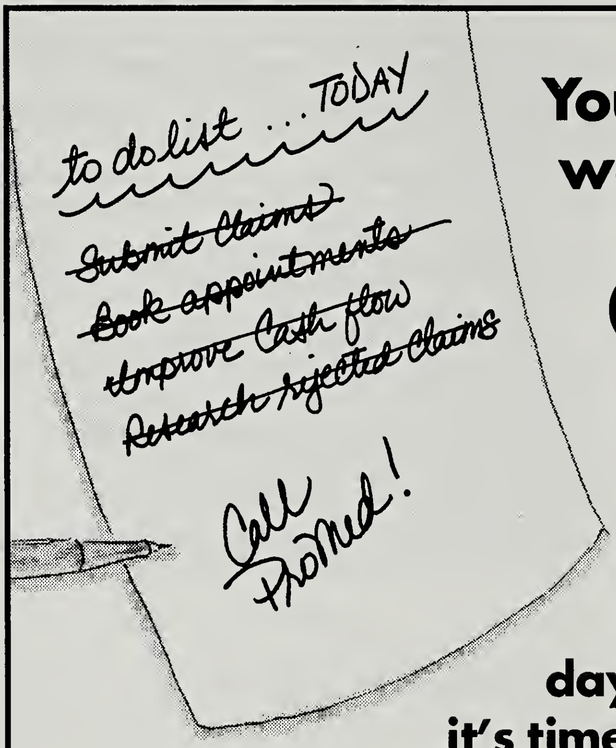
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The Crazy Corporate Cannibalization of Health Care Continues ...

JOSEPH BENTIVEGNA

MAJOR financial interests, in their never-ending quest to plunder the middle class, have now turned their attention to health care. In fact, the for-profit HMOs (health maintainance organizations), according to a recent *Wall Street Journal* article, have a problem. They cannot figure out what to do with all the money they are making. Some analysts believe they will buy more hospitals, others suggest they will give larger dividends to shareholders, but my bet is that executives will simply take $50 million in salaries.

It never ceases to amaze me how an immigrant can arrive on our shores not knowing a word of English and unable to distinguish George Washington from John Travolta, and still receive totally free health care courtesy of the American taxpayer.

Yet laid-off workers from Pratt, whose mothers are members of the Daughters of the American Revolution, live in fear that a bicycle accident by one of their children could cost them their life's savings. Why is the United States the only Western country to allow this situation to exist?

The answer is that our *populus* has been led to believe that any further government intervention in health care is tantamount to socialism and that an unfettered marketplace allows patients the freedom to choose their own doctors.

By now, it should be obvious to the middle class that those advocating unbridled market forces are merely perpetrating another scam to pick their pockets. Patients are no longer able to choose their own doctors. Insurance companies have arbitrarily canceled contracts severing patient-physician relationships that have persisted for decades.

The latest buzzword—managed care—is nothing more than a license for insurance companies to give healthy people the impression they are covered, while tormenting the unfortunates who are sick with mind-boggling paperwork and 800 numbers that eventually lead to a busy signal.

Women are heaved out of the hospital two days after a cesarean section and psychiatrists are asked to reveal their intimate conversations with their patients or else not be reimbursed.

The main reason market forces alone cannot control health-care costs is that human beings do not choose to become sick and have no control of the DNA strands they inherit from their parents. Thus, some people are simply genetically programmed to get asthma, diabetes, heart disease, and cancer.

People feel that their health is priceless and do not shop for health care in the same fashion as when purchasing cars and cloths. It is unusual for a family to call Dr. Smith to see if he is less expensive than Dr. Jones while grandpa is having a heart attack.

What is truly amazing is the ability of the insurance conglomerates to convince our politicians that they are controlling health-care costs in spite of overwhelming contradictory evidence. Health-care costs in the past five years have increased 50%. Furthermore, 40.9 million Americans are uninsured, the most ever. The uninsured in Connecticut have grown 50% over the past two years, climbing to 12% of the population. All managed care does is force hospitals to downsize and decrease fees to health

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JOSEPH BENTIVEGNA, M.D., ophthalmologist, Rocky Hill. Reprinted with permission from *The Register Citizen,* March 1995.

care practitioners. This money than goes to insurance company executives along with their stock and bond holders. The patients do not get lower rates.

Now insurance companies have come up with a new way of controlling costs—capitation. Under the present system, doctors are paid for performing services. With capitation, doctors are paid a lump sum to manage a group of patients whether they see the patients or not. In other words, doctors make more money if they don't see patients! (I am not making this up.) Patients can now look forward to reading "Take two aspirins and call me in the morning" in their e-mail.

Do you think our Washington politicians and insurance company executives are signing up their families for capitated plans? Fat chance. In fact, these people never even joined HMOs. They all have traditional indemnity plans that enable them to pick their own doctors and demand whatever test they want without bureaucrats threatening not to pay the bill. They can do this because in the case of politicians, the taxpayers pay the bill and in the case of insurance executives, their premium holders pay the bill.

Organized medicine is complaining about the corporate cannibalization of health care, but in actuality, they are getting their comeuppance. Had the medical community supported a health-care plan that prevented the middle class from losing their life savings, this fiasco could have been avoided.

Eventually, our Congress will pass single-payer catastrophic coverage for all Americans, a plan actually proposed by a conservative Republican in the early 1950s. Everyone will be covered for catastrophic illness but will have to buy insurance to cover routine care. Unfortunately, our insurance conglomerates will continue to massacre the middle class until that time comes.

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50 Years Ago
From *The Connecticut State Medical Journal*
April 1945

What Is the Matter with the Patient Who Is Always Tired?

WALTER C. ALVAREZ, M.D., *Rochester, Minnesota*

The Author. *Division of Medicine, Mayo Clinic, Rochester, Minnesota*

I SUPPOSE one who has been interested most of his life in digestive diseases ought to be talking about some gastrointestinal problem, but actually one in four or five of the patients I see complains mainly of fatigue. These persons are tired out, they have no pep, they have to drive themselves to work, and many think that if I would only go over them and find something wrong with stomach, or bowel, or liver, or something, I could fix them up and make them happy again.

A woman will say she is dragging around, unhappy because she cannot go out with her husband; she cannot be a good pal for him, and cannot be a good mother for her children. A young woman, perhaps a school teacher, is so tired that on Saturday she has to go to bed and stay there through much of Sunday; she has to live the life of a hermit; she cannot go out in the evening and be fit to work the next day. All such people want to be made stronger, and they hope desperately that I will find some focal cause for their trouble, something that I can tinker at or cut out. Unfortunately, many of us doctors have the same hope; we too have the idea that if we would examine thoroughly enough we would always find a focal cause for the disability, and in attempting to do this, and to satisfy the patient, we often keep grasping at diagnostic straws.

Every day I see tired persons who have been through several overhaulings and have been told that the cause of their troubles has been found in a dropped stomach, or a spastic colon, or gastritis, but usually these diagnoses have failed to help the situation and they look to me like placebos. Sometimes, of course, we physicians find something that is definitely wrong, like amoebas in the stool, but even then we will not have uncovered the "cause," as shown by the fact that after the parasites are all killed with drugs the patient goes on just as miserable as he or she was before. As I say, the amoebas were parasites and it was good to get rid of them, but they were doing the patient about as much harm as so many fleas. There were not enough of them, and they were not causing the symptoms complained of.

Often we explore the abdomen and take out an appendix, or maybe a gallbladder that empties a little slowly; we take out teeth and tonsils, we give a lot of "shots," and what happens? The patient goes to another clinic and gets overhauled all over again. He pays another good sized fee, he gets another placebo of diagnosis, and he has some treatment for this. Later he goes to another clinic and all is done over again, regardless of the fact that most of these

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Editor's note: Walter C. Alvarez was a popular proponent of the growing field of psychosomatic medicine in the 1940s. Most medical students read with pleasure and profit his 1943 book, *Nervousness, Indigestion and Pain.*

persons can ill afford the great expense, and most physicians can ill afford to waste the time. With the best of intentions, we of the medical profession are evidently giving many of our tired patients a raw deal; we are not giving them much for their money, and worse yet, too often in our desperate efforts to help them, we hurt them. Whenever we perform a futile operation on some frail little woman, who can ill afford to pay even the hospital expenses, we have not practiced good medicine.

Lesion Not Cause of Fatigue

Although each year I examine hundreds of these tired people, and have made a life long study of their problems, I must admit that I seldom can find any focal cause for their distresses. I just cannot do it, even with all the fine laboratory and roentgenologic and other facilities that are at my disposal. And oftentimes, when I do find a condition which might be an indication for surgical intervention I do not want to advise it because I am so sure that the symptoms are not due to the condition and that operative treatment will not make the person well.

The other day I saw a woman with a myomatous uterus which she thought was causing all of her ill health and abdominal discomfort. It may well have had some part in doing this, but I doubt now if I would have let her undergo a hysterectomy when I did if I had learned sooner that her husband had recently taken to drinking so heavily that he was facing dismissal from his position and utter ruin. No wonder the poor wife, wrestling night after night with this problem, was tired out and unable to rest or sleep.

I could tell innumerable such stories to show how often the lesion found is not the cause of the fatigue. In many cases I think most of you would agree with me, after reviewing the record, that the diagnosis that the tired person came with was not significant; the finding may have been all right, but it was not causing the illness and it could not explain all the symptoms.

Examination Not Necessary

Commonly, when one of these nervous, tired persons comes in, asking for an extensive overhauling and hoping desperately that at last I am going to find the cause of her trouble, I rather hate to start examining her; I would rather start preparing her for the disappointment which I am pretty sure will come at the end of the study. A physician said to me a few minutes ago, "I wish you would talk to us on the problem of dismissing a 'neuro;' of telling her that she is a 'neuro' and getting away with it; of satisfying her, of getting her to mend her ways, and of keeping her from going straight off to some one else for another examination." Yes, that is one of my biggest problems. Many times I say to these people, "I wish you hadn't come. If only I had seen you in your home town and had talked with you and your wise old family doctor for five minutes, I would have said, 'Your doctors here have examined you well. They have told you that they cannot find anything significant; they have told you that you are chronically frail and ailing like your mother before you. I think they are right; and under the circumstances you must not expect me to work any miracles of healing for you. Why now waste more money on a repetition of all the old tests?'" But these people usually come anyway. They say, "Go ahead and give me a more thorough examination than I ever had before. If you'll only look hard enough and long enough you'll find the cause of my trouble."

I often wish they would give me credit for knowing something about disease and sick people. As I often say, "For thirty-five years I've been studying people like you every day, and surely, by now, I ought to know something about you. I ought to be able to recognize you and your troubles at a glance—I do, and this problem of yours is nothing new or puzzling to me."

We physicians can have the abdomens of these people explored surgically without finding anything significantly wrong. I remember a man who for twelve years had what appeared to be a psychoneurotic pain in the right upper quadrant of his abdomen. Every year he came back and insisted upon having another examination. Finally he talked a surgeon into performing an exploratory operation, and nothing was found. My assistant said, "Probably the surgeon missed the cause." But eventually the man died of a stroke, and when a complete and careful necropsy was performed, again, no cause could be found for the pain. Actually there should be many types of pain for which we cannot hope to find any macroscopic cause. I think the pain is real, but the cause will never be seen with the naked eye. It may not be in the place where the hurt is; often, probably, it is up in the brain, and the distress is referred out to the periphery.

Characteristics of Fatigue of Psychic Origin

Often one can tell right off that a person's fatigue is due purely to a nervous inheritance. Characteristically, this type of distress is present in the morning; the patient wakes with it and it wears off gradually in the late afternoon. Particularly when a person has a neurotic ancestry, there may be days when he will wake feeling so depressed and miserable that he will wonder how he can find strength to get up and face the day. About three or four o'clock in the afternoon he will begin to feel better, and about ten o'clock at night he may feel like "going places." Obviously, such fatigue is not due to a hard day's work. If it were, it would most likely come at night and would not be such a bruising and punishing type of fatigue. Significant is the fact that in many instances the woman with the terrible type of morning fatigue has no work to make her tired.

Sometimes, in trying to get these patients to see that just from their story and appearance I should know much about them and their disease, I say, "Suppose we were to hear a child cough in a particularly harsh and brassy way, and then whoop and vomit. Couldn't you make the diagnosis?"

"Surely," says a mother of several children, "whooping cough."

"Correct, and you wouldn't feel then that you had to take the child's sputum to the laboratory for the isolation of the bacillus of pertussis, and you wouldn't need to roentgenograph its lungs; you would just know it had whooping cough." Well, when a frail little woman comes in, perhaps with a history of five abdominal operations, none of which did much good, and many complaints of fatigue, aches and pains everywhere, dysmenorrhea, and what not, I do not have much desire to examine her. I have been in the game long enough to know that I am not going to work any miracles for her. Even if I were to find a tumor as big as a child's head, and remove it, I would not work a cure.

PSYCHOPATHIC INHERITANCE

Often the person with painful fatigue has a bad psychic inheritance. To illustrate: One day I saw, in consultation, a woman 45 years of age who had the very distressing type of morning fatigue. She had been examined many times by competent men, but nothing significant had been found. She had a good husband, good servants, no overwork, and no cause for unhappiness or strain. I asked just one question: "Which of your near relatives had a bad nervous breakdown?"

She said, "My mother went insane when I was born."

Now, to my way of thinking, this fact explained everything. Her distressing fatigue represented a mild equivalent of her mother's melancholia. I felt sure of it because I have heard this story and seen this association so many times.

Some of you may ask, "But can't you find a history of insanity in almost any family? " No, I cannot find it in the families of most sensible healthy people, but I can find it commonly in the families of the patients with constitutional inadequacy and a pathologic type of fatigue. To be true, insane ancestry must be common because insanity is so common. There probably is a child being born right now in this city, and do you know what its chances are of being committed some day to a state asylum for the insane, the feeble-minded, or the epileptic? The chances are one in nineteen! Think now of the added number of incompetent persons who are cared for in homes, constituting a terrible problem to their relatives, and think of the number of queer relatives each one has, all slightly tarred by this same brush. It is one of the biggest problems facing civilization today.

RELATIVES OF THE INSANE

One of the commonest diagnoses that I make in the office every day is "relative of the insane." Some of you may think it a bit queer, but really it is a most helpful and instructive diagnosis. Often it tells me all I need to know about the etiology of a bad hypochrondriasis or psychoneurosis in a person who would like to take up all of my day with a recital of his symptoms.

CONSTITUTIONAL INADEQUACY

Many of the tired people I see each day are constitutionally inadequate. I think they will always be somewhat frail and sickly. They cannot be made over. When they say to me, "Surely there must be some way in which I can be cured," I reply, "Yes, but the only way I know of would be to begin with a different set of grandparents."

Some doctors say, "Do you mean to tell me that you tell patients that they are hopelessly inadequate? Isn't that terribly discouraging?"

Yes, but often I soften the blow and get them to see what I mean by admitting that to some extent I, too, am constitutionally inadequate. I could not earn my living as a prize fighter or a wrestler. I found once that I could not even stand the long hours and loss of sleep that a busy general practitioner has to endure day after day. I tried it, and found that I could not "stand the gaff;" I had to become an internist who could go home at 5:30. I do not tell these people that they must be a failure in life; what I ask is that they do as I did, and try to find a job within their means of strength. I ask also that they learn to hoard their energies and not to fritter them away on emotional debauches, as so many people do.

OTHER CAUSES OF FATIGUE

Many tired women are tired because they are so unhappy and so full of worries. Many are unhappily married; perhaps with an alcoholic, or a gambler, or a chaser, or just an inarticulate person for a husband Many cannot get a divorce because of children or financial responsibilities or frail health. We physicians must get these stories and must help these poor women to adjust to their problems as best they can. Sometimes they regain their health when they are made to see that they just cannot get out of their bed, no matter how unhappy it is, and hence they had better stop thinking of divorce and settle down to make a better go of marriage.

If a patient who comes complaining of fatigue never was worth the powder to blow him up, if he never amounted to a hill of beans, and if he comes of a "poor trash" tribe, most of whom never stuck to a job, I am not so concerned over the diagnosis, but still I am willing to give the man one good examination. A "neuro" *can* have organic disease. But if a man who has always worked hard and felt well suddenly starts to crack, then I want to go over him most carefully and I want to keep going over him until I am satisfied that there is nothing wrong besides overwork.

In such cases a test that helps me much is the estimation of the blood sedimentation rate. Many a time I have had a patient referred to me with the diagnosis of a neurosis, and perhaps at first glance have been much inclined to agree, but when the laboratory reported a sedimentation rate of perhaps 75 or 100 mm. in an hour (Westergren), I settled down to make a most careful examination. In all but a few such cases I have been able to find a serious lesion. In puzzling cases of this type I often order a liver function test, and if the report comes back "dye retention grade 3 or 4" I suspect that the liver is full of metastatic nodules, and then I have the roentgenologist and proctologist study the bowel with the greatest care.

In young people, of course, I look for tuberculosis, and I always have a film made of the chest. Sometimes a college student who has been doing well in his studies, suddenly, after having had one or two vomiting spells or a bad stomach ache, will become tired and "pepless" and unable to work. Sometimes, then, it will be found that he has a smouldering appendicitis.

HYPERTENSION BEGINS IN YOUTH

Hypertension usually begins in youth and often makes the victim a bit tired and worried about his health. Hyperthyroidism, hypothyroidism and heart disease are less common causes for a fatigue state. Often an attack of influenza will leave the patient tired for weeks or months, especially, perhaps, if there has been an encephalitic type of virus mixed up with it. A tendency to migraine will oftentimes go with a fatigue state.

In my opinion brucellosis is now a poor diagnosis to make. I see many persons with this diagnosis but I can rarely confirm it. Almost every patient who has come to me with this diagnosis has looked to me more like an ordinary "neuro" with occasionally an afternoon temperature of 99.5 F. I think this temperature is normal for most nervous women. In cases of suspected brucellosis I look at the spleen with the roentgen ray, and when I find it small, I seriously doubt the diagnosis. I also get a blood sedimentation rate and when it is under 10 mm in an hour, I cannot believe that the patient has any smouldering infection.

LITTLE STROKES THAT GO UNRECOGNIZED

One of the common causes of nervous breaks in older people is a small stroke which has not been big enough to affect the centers for an arm or a leg. Just think of the thousands of places in the brain where a small thrombosis can occur, just big enough to produce a dizzy spell, a little mental confusion, or a few symptoms of bulbar involvement. Some of these little strokes take away all the patient's joy in life, and perhaps the ability ever to work again.

NERVOUS BREAKDOWNS

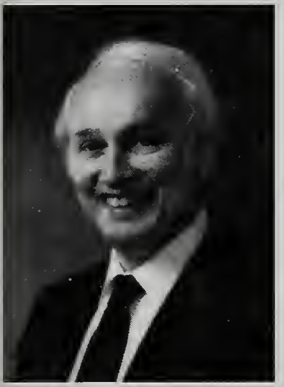
Many of the people who come to me with complaints of indigestion really have a nervous breakdown, but they do not tell their history in such a way as to make this apparent. How does one recognize a nervous break? Only by asking a few essential questions. Curiously, able young assistants usually fail to find out the most important thing about a patient, namely, that he has not worked for one or more years. And, if they learn this, many do not think to ask why he does not work. If they had, he would probably have said, "I just can't face people. If I were to try to talk to a customer I would get jittery and have to excuse myself." Very helpful is the discovery that these people cannot read. By way of explanation, they say they are not interested enough, or the letters run together, or they forget a paragraph as soon as it is read. Often such a person cannot stand even listening to the radio, or going to a movie. At a movie he soon gets tense and has to go out. Some get overly emotional, and cry. They cannot make decisions at the office, and their work suffers. Usually they cannot sleep well at night. They are irritable and "fly off the handle" easily. Any person with such symptoms has, primarily, a nervous breakdown; his brain isn't working right.

The next question is: Why has he a nervous break? Was it caused by overwork, strain, worry, sorrow, insomnia, several operations, an automobile accident, or an attack of influenza? If so, and if the patient has a sane ancestry, his breakdown will probably be easily curable. The most dangerous type of nervous break is the one that comes out of a clear sky without any apparent cause in a person who has insane ancestry. Guard your prognosis in that type of case. Guard it also when, in the case of an older person, the break followed some sudden attack which may well have been due to a little stroke. Guard it when there is a history suggesting an attack of encephalitis. Too often the story of an attack of mild encephalitis is not drawn out by the many physicians who see the patient in later years, and so he gets treated for indigestion.

SUMMARY

Let us physicians not be so determined always to find an organic cause in the abdomen or thorax for a patient's sense of fatigue. Let us look for it oftenest in a tired brain or in a brain handicapped by poor nervous heredity. Let us constantly be on the watch for the symptoms of a nervous breakdown, and when such a break is recognized, let us find out why it came.

A Day in the Life of Charlotte O. Remaniss, M.D.
(The Story Ends, Episode 5)



In the first episode (*Conn Med* 1994; 58:749), Dr. Remaniss is criticized for failing to meet the monthly productivity goal set for her at MegaHealth Plan, where she is employed. Episode 2 (*Conn Med* 1995; 59:51) finds Dr. Remaniss accused of fraud by Simon Smeilknot, not because she billed for a service she did not provide, but for *not* billing a patient for whom she felt sorry. As a result, she is scheduled to appear before the BOSSE (Board of Select Senior Electors) that evening, Dr. Remaniss, we learned in Episode 3 (*Conn Med* 1995; 59:105), is the inventor of BioGlue, the product whose profits fueled the development of MegaHealth Plan and made Dr. Remaniss wealthy—if far from happy. After an angry epiphany in Episode 4 (*Conn Med* 1995; 59:181), Dr. Remaniss understands her circumstances and her place in them. It is still Tuesday, December 3, 2011, the hour is 6:50 pm. Dr. Remaniss has made her way to a teleconference room to prepare for her session with the BOSSE.

"Welcome, Caregiver Remaniss," intoned a pleasant electronic voice. A frown flashes across her face as Charlotte looks about at the equipment in the room lit dimly by multicolored LEDs in flush panels in two of the room's four equally-sized walls.

Light level two, please." Only one notch up, the lighting remains faint. "Netcom, feed one, BOSSE." An incantation with ritual significance, Charlotte imagined. Not much like the large chambers of old with nascently crack-lined leather ... on the chairs and the faces of men—usually men—and women who sat in them. At least it had been human. "Netcom, full array, phase feed, start, BOSSE."

Charlotte greeted each Elector as his or her panel appeared, floor to ceiling and three feet wide, on the televideo wall. This evening there would be only four Electors. The fifth, Nathan, had died and not yet been replaced. Generated electronically, *In Memoriam* appeared over a tasteful spray of flowers on the fifth panel. (An etiquette for teleconferencing had developed almost as quickly as the technology. Indeed, Hillary Clinton's *A Guide to Teleconferencing for the Novice* was still required reading at the junior high school level.) The room had been built to feature five oversized panels, but would accommodate up to 20 automatically reduced-size panels. It was a rare day, however, when the board did not choose to be seen larger than life.

"Caregiver Remaniss, please be seated. As you know, Dr. Smeilknot was required to report that you once again exceeded your quarterly allotment of 25 demerits. Most recently, you sutured cuts on a patient's fingers and deliberately neglected to make certain that he was charged. The patient, of course, had a reciprocal responsibility under his policy to make certain that a treating physician charged him. Since he, too, is at fault here, he and the members of his family have been dropped from coverage. His conduct has been reported to the Associated Society of Subscribers, which body has barred him from participation for three years. God, help us all to remain healthy. Now, Caregiver, what is to be done with you."

"Chairman. Electors.," Charlotte began, "We have lost sight of what is important. All of our time is spent designing machines and administrative systems to service patients efficiently. I submit that so much of our focus has been on what is around a patient that the patient is now little more than an excuse for us to build and play with ever more sophisticated toys. We...."

"Yes, yes, yes, Caregiver. But please stay with the issue. We are not here to debate these matters. We *are* here to discuss your flagrant disregard for our policies and procedures. Your recent episodes of conscience have also been relayed to us. Conscience is a fine thing in a physician, but you are going too far. We have been concerned in this regard. Take care."

(continued on next page)

"Chairman, if we do not comfort our patients, they will find solace and care elsewhere. And I know that I find greater reward in a patient's grateful smile than I do in this month's receipt of his capitation payment. On a practical level, Chairman, no patients, no toys."

"Caregiver, we are trying very hard to be tolerant. I will remind you, again, that the matter before us this evening is your abuse of the very rules and regulations by which we live. These are standards, I might add, that evolved over a long period of time. Now, what are we to do about your abuses?"

Looking from face to face on each of their televideo panels, Charlotte saw businesslike eyes that shared the Chairman's frustration at her inability to deal with the agenda. Her head hung for a moment. "Chairman, I am a physician. I am not a caregiver. I'm not a careteam member. I am not a MegaHealth Plan team player. Take away the toys, strip away your policies and procedures, and you leave me with what patients fundamentally value—that I genuinely care about their pain and want to make it stop. I want that grateful smile. It is why medicine when it is practiced well will forever be more art than science."

"Caregiver, we are going to take a moment to deliberate."

"Caregiver Remaniss," the Chairman stated, the audio back, "It is our collective judgment that you have been overworked. You are taking yourself far too seriously, and this, forgive me, nonsense about what patients value is conclusive evidence. What would you do without the medical armamentarium at your disposal today, without your very own BioGlue? Just sit at the bedside of dying patients? Enough.

In the years ago you would have us return to, we would have called this irrationality a nervous breakdown. We would have referred you for psychiatric attention. Thank heavens technology replaced that specialty's soft-hearted values. No, Caregiver, by act of this BOSSE, we are hereby committing you to a 12-hour course of psychochemical reprogramming, followed by a two-week leave of absence. Your fitness to return to duty will be evaluated on the following Monday. Charlotte," the Chairman said more gently, "It's what's best."

> In all professions each affects a look and an exterior to appear what he wishes the world to believe that he is. Thus we may say that the whole world is made up of appearances.
>
> —Francois de La Rochefoucauld

Special thanks is due to Gary Freberg who was principal collaborator for the Remaniss series. Stay tuned next month for my concluding remarks in President's Page.

Theodore Zanker, M.D.
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Should the Words *Sin* and *Shame* Be Revived?

ROBERT U. MASSEY, M.D.

> Use everyman after his just desert, and who should 'scape a whipping?
>
> Shakespeare: *Hamlet, Act II, Sc. 2.*

WHEN my classmates and I were introduced in earnest to Greek mythology in the seventh grade, our teacher told us quite seriously that the Greeks had no idea of sin; our teacher, caught up in the progressivism of the time, of course, was wrong. The Greek word *hamartia* signified not only failure, missing the mark, but a wrong act, a sin against a divine commandment.

Several years ago some nurses and I were watching a video dealing with medical ethics; in it the surgeon-general C. Everett Koop acted out an encounter with a teenager who had come to him for a contraceptive prescription. He listened patiently to her request, asked if she had thought it through carefully, and urged her to return after office hours so he could talk with her about a better way. The nurses were offended that he had even implied that her request was inappropriate, and further that he would try to impose his values on her, perhaps, heaven forbid, making her feel ashamed!

In 1973 Karl Menninger wrote a book that enjoyed moderate popularity, *Whatever Became of Sin?*[1] He observed that the last American president to mention sin publicly was Dwight Eisenhower when he proclaimed a national day of prayer in 1953; he borrowed his prayer from Abraham Lincoln's prayer of 1863:

> It is the duty of nations as well as of men to own their dependence upon the overruling power of God, to confess their sins and transgressions in humble sorrow, yet with assured hope that genuine repentance will lead to mercy and pardon.

"So as a nation," wrote Menninger, "we officially ceased sinning some twenty [now forty] years ago." Crimes, of course, remained; some sins turned into crimes, others into medical problems, but with these transformations, shame pretty much disappeared, and guilt feelings became pathological. The demise of sin coincided closely with the sexual revolution. There is no denying that those of us who were adolescents in the 1930s defined sin mostly as failure to live up to fairly rigid standards of sexual morality. Our parents and teachers had been middle-class Victorians and Edwardians for whom their Roaring Twenties had been a delightful aberration, hardly to be taken seriously as a revolution, sexual or otherwise.

The dominant ethos then was middle-class morality, the very morality that the medical historian Oswei Temkin invoked to explain the decline of venereal disease beginning in the late 18th century. Bourgeois society, then coming into its own, saw syphilis as "a sign of the moral degeneracy of the single individual who has transgressed the laws of the moral world.... Disease [syphilis] was now forgiven no-one, whether aristocrat, bourgeois, or peasant. For one and all it spelled disgrace."[2]

As the detective-story writer Dorothy Sayers reminded us, *luxuria* or lust is but one of the seven deadly sins. I suspect it is a fair indicator, when it runs rampant, that the other six are out of their cages as well. A judge, reflecting on the failure of the liberalism that he had so long espoused, said that too many of our fellow citizens have lost their sense of responsibility and self-control. Adolescent sexual activity, now exceeding 50%, with its resulting increase in illegitimate births to teenage mothers is a judgment on irresponsible parents in a permissive culture.

Senator Daniel P. Moynahan, speaking of this epidemic, unique to our time, remarked recently that "We have learned how little we know and how much we have denied our failure." Only to mention this matter a few years ago was to be scorned at best as an outmoded moralist, and at worst, a racist.

Shame is the only reliable corrective. Social engineering and making laws may reinforce, but they do not cause responsible behavior. Moral renewal is not something that job training and eliminating poverty can guarantee. A society in which shame and guilt have become feelings to be ashamed of is a society in steep decline. "I have pursued the possible usefulness," wrote Dr. Menninger, "of reviving the use of the word 'sin'—not for the word's sake but for the reintroduction of the concept of guilt and moral responsibility."

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ROBERT U. MASSEY, M.D., Professor Emeritus, Division of Humanistic Studies, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington.

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This Month's Reading in Review

TIMOTHY B. NORBECK

"Doctors should be the ones to decide the future of health care in the United States—not Hillary Rodham Clinton or Ira Magaziner or Newt Gingrich or Bob Dole or the Republicans or the Democrats or Prudential or Humana or General Motors or Exxon."

Joan Beck, *Chicago Tribune* (20 February 1995)

In what lawyers call the largest verdict in a Georgia medical malpractice case, a Georgia family was awarded $45 million after their six-month-old son had to have his arms and legs amputated following an HMO's decision to have him treated at a hospital 42 miles from his home.... The boy's mother had called on an emergency line and was told to go to a specific hospital which grants the HMO a 15% discount.... On the way to the hospital, the boy's heart stopped, and although he was revived, circulation to his hands and legs ceased and gangrene set in.... The family's attorney called the case an example of what happens when "cost-conscious managed care vendors try to cut corners."

Atlanta Constitution (6 February 1995)

Percentage of people who wear seat belts regularly: 58%. Percentage of people who kept a gun in the house in 1993: 49%. Percentage of people who kept a gun in the house in 1959: 49%. Percentage of National Public Radio listeners who voted for Canadian-style health reform in California: 55%. Percentage of Rush Limbaugh listeners who did: 22%.

Health (March/April 1995)

According to demographer Carl Haub, about 5.5% of all people ever born are alive today.... He "semiscientifically" figures that about 105 billion people have been born since the dawn of the human race.

Wall Street Journal (24 February 1995)

First American Health Care, Inc. has been cited by the Department of Health and Human Services (HHS) for improperly billing Medicare 42 times during 1987, 1988, and 1992.... Among the items billed: $162,000 in airplane costs and pilot salary, $84,341 for gourmet popcorn, $149,000 for lobbying, $21,243 for earrings and cufflinks, $3,554 for liquor, and $20,882 for Christmas, birthday and get-well cards.

Wall Street Journal (1 March 1995)

There have been 808 lawsuits filed against the cigarette industry since 1954.... Only two decisions have gone against the industry.... Damages were not awarded in either case.

Chicago Tribune (23 February 1995)

A new Harris Poll says 71% of Americans over the age of 25 are overweight compared to 58% in 1983 and 64% in 1990.

New York Times (27 February 1955)

Top 5 Reasons Americans Visit a Doctor

- Annual physical exam
- Cough
- Prenatal exam
- Sore throat
- Postoperative care

U.S. Department of Health and Human Services (HHS)

Good health practices **save** money, concludes a Milliman and Robertson study of 6,000 Chrysler Corporation employees and their dependents.... Among the conclusions: smokers had 31% higher annual claim costs than nonsmokers; hospital utilization was 143% higher for overweight persons compared with those of average weight; and people with high blood pressure spent 24% more days in the hospital than people with normal blood pressure.

Business & Health (February 1995)

Only in America: A University of Idaho student thought it would be funny if he "mooned" friends from a third-floor dormitory window.... The 18-year-old freshman stood on a radiator, pulled down his pants and was pressing his buttocks against the window when it shattered.... Landing on his rear end on the concrete below, he fractured four vertebrae.

At the time, the embarrassed student said that it was just a freak accident.... But six months later, the student and his parents alleged that the accident was the result of negligence on the part of the university and its employees—and asked for $940,000 in damages.

Reader's Digest (March, 1995)

TIMOTHY B. NORBECK, Executive Director, Connecticut State Medical Society.

Reforming The Reformers?

When President Clinton unveiled his health care reform package, much of it seemed very familiar. The foundations of his plan—quality, responsibility, simplicity and choice—also happen to be four key principles of M.D. Health Plan.

Quality. M.D. Health Plan is the only plan sponsored by the Connecticut State Medical Society. The Society's—and its members'—commitment to providing the finest health care to people across the state is well documented.

Responsibility. As Connecticut's physician-sponsored and physician-directed HMO, we believe that the best medicine for patients is practiced by physicians.

Simplicity. We make it easy for your patients to get the highest quality care. They don't have to hassle with inconveniences such as claim forms or a gatekeeper.

Choice. Through the CSMS–IPA, M.D. Health Plan provides members across the state access to over 6,000 physicians and all Connecticut acute-care hospitals.

Health care reform is nothing new to M.D. Health Plan. We've been changing health care for the better since 1987. Over 115,000 members throughout Connecticut agree.

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Letter to the Editor

Letters to the Editor are considered for publication (subject to editing and abridgement), provided that they are submitted in duplicate, signed by all authors, typewritten in double spacing, and do not exceed 1-1/2 pages of text (excluding references). They should not duplicate similar material being submitted or published elsewhere. Letters referring to a recent Journal article should be received within six weeks of the article's publication.

The Caduceus:
A Symbol of Healing in Medicine

To the Editor: Throughout history, medicine has been considered a profession of healing and physicians have been described as healers.

Healing refers to "make sound or whole" and restores the health of the body, the mind, and the soul. Socrates once said, "Just as you ought not attempt to cure eyes without head or head without body, so you should not heal body without soul."[1]

Medicine has been associated with serpent symbolism since humanity has recorded the art.[2] The form of the caduceus, as it is stylized today, is a reminder of the Biblical reference in which the Lord said to Moses, "Make a snake and put it up on a pole; anyone who is bitten can look at it and live."[3]

In today's social, political, and economic climate, it seems that medicine has placed healing somewhere off center. The language of medicine is filled with terms like health plans, affordable health care, health reform, cost control, rationing of care, health maintenance, insurance coverage, malpractice, etc.—and the list of terms keeps increasing with little or no mention of the words *healing* or *preserving life.* Some physicians have abandoned the Hippocratic tradition of doing no harm. Physicians are performing elective abortions, advocating euthanasia, assisting in suicide, and participating in legal execution of criminals.

A close reading of the medical history of the great civilizations of Egypt, Greece, and Rome would suggest that while there have always been exemplary physicians devoted to the ideals of medical ethics, the profession at large would from time to time get mixed marks. An example of this occurred during the health-reform debate in which the American Medical Association spent millions of dollars in advertisements and lobbied to oppose the proposed presidential health reform plan, and in turn the U.S. president traveled around the country, attempting to sell his health plan and hoping to persuade the American public to buy it. The "medical scene" seemed to have been transformed into a "market place scene" filled with bargain hunters, sellers, and buyers. It is no wonder that the caduceus has been transformed into a dollar sign in the public mind, and physicians are so often being called moneymakers!

In this period of transition, as new external rules may be imposed on the practice of medicine, physicians need to undertake an honest and sincere self-examination to distill "what the medical profession stands for," and to rediscover what its emblem, the caduceus, once stood for" The caduceus has always symbolized the practice of medicine as an art and science of preserving life and healing; it never symbolized the dollar sign! The traditional image of the physician as a healer was eloquently described by Tumulty when he wrote, "The thoughtful management of the total problems of the sick person makes mere treatment of a disease or symptom seem woefully inadequate. The physician is inexhaustible, capable of infusing into his patients' insight, self-discipline, optimism, and courage. Those that physicians cannot make well they comfort."[4] We need to recall these ideals now when everyone seems to want to turn the practice of medicine into a commodity to buy and sell; it is the sanctity of life that physicians must seek to understand and defend.[1] An aphorism of Hippocrates declared that "Where there is Love of man, there also is Love of the art," and Francis Weld Peabody reminded us that the secret in the care of the patient (still) is in caring for the patient[5] and not in the dollar sign.

For the medical profession to survive the current and future challenges imposed by health reform, social, economic, and political pressures, physicians need to cling to their heritage of healing as symbolized in the medical emblem, the caduceus.

Hani Raoul Khouzam, M.D., M.P.H.

Director, Consultation Liaison Psychiatry
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Problem Based Learning, Etc.

To the Editor: Re your editorial on Problem Based Learning (*Conn Med* 1994; 58:753). I recall a heated discussion with Dean Aura Sevringhaus in 1944, my freshman year at P&S, during which I strongly advocated that basic science should not be isolated but should be integrated with clinical teaching in the first year of medical school. I was unaware of the work at McMasters, but I believe it was in the '70s that a P&S classmate Larry Weed introduced the first U.S. Problem Oriented Curriculum at the University of Vermont medical school.

I derive a good deal of pleasure from the knowledge that a belief I have held, which has always governed my own teaching, has finally gained widespread acceptance after 50 years, and may benefit future generations of medical students.

May I draw your attention to a paper on Ethics and Nutritional Support by Dr. John MacFie of the GI Unit of the Scarborough Hospital, Scarborough, North Yorkshire, United Kingdom, to be published as a supplement to the March / April 1995 issue of the journal *Nutrition.* A reasoned and reasonable historical review, you may find his paper worth publishing.

Dr. MacFie delivered the paper in a talk last year to the editors of *Nutrition* and daughter Alison, an associate editor, had me write a column on the larger issue of Death With Dignity for the 1995 January / February issue.

The following may be of interest to you:

During my internship, in the fall of 1947 or spring of '48, an elderly alcoholic was admitted to our service (the Third Surgical) at Boston City Hospital one week after an uneventful reduction by the Orthopedic Service of a neglected left shoulder dislocation. On admission he was moribund, markedly febrile, ecchymotic and, edematous and questionably crepitant from his left hand to his left inguinal ligament, and he died within hours.

Interest in the case was extreme, despite which none of the onlookers, amongst whom were Weinstein and Charles Davidson of Harvard's Thorndike Lab, were able to offer a diagnosis.

The physical changes bore a striking resemblance to those I had seen at an autopsy the previous year at Columbia-Presbyterian Hospital, and I remembered Professor Frank Meleny's comment at the time that they were the result of a micro-aerophilic beta hemolytic strep infection. There being no other suggestions, I made that the diagnosis of record, and coroner's post performed at the Mallory Institute of Pathology by Timothy Leary, Coroner of Middlesex County, did confirm subcutaneous streptococcal gangrene as the cause of the arresting morphologic changes and the cause of death (see *Conn Med* 1995; 59;67-72).

Neither the term necrotizing fasciitis nor that of toxic shock syndrome had been introduced at that time. While Frank Meleny knew the entity, prior to that autopsy I know that it had not been recognized in Middlesex County (Boston), at least not by Leary, the long-term coroner, or by anyone then at Harvard's Thorndike Lab. The organism may be ancient but was there recognition of the entity before the '40s and Meleny?

(Mike Parry corrected me when I referred to this as Meleny's gangrene, that being a synergistic gangrene—staph and strep together.)

Stewart A. King, M.D.

Darien

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March 17, 1995

Mr. William J. Gilligan
Commissioner of Insurance
State of Connecticut
153 Market Street
Hartford, CT 06103

Dear Mr. Gilligan:

Approved Clinical Laboratories in Connecticut will not perform tests on patients except as a consultant to a referring physician. Connecticut law says that the doctor ordering the HIV test must document 20 minutes of counseling prior to drawing the blood, and document 20 minutes of counseling at the time the result is reported to the patient.

The other morning a patient came to the walk-in clinic (where I work as a locum tenens physician) for a life insurance physical. By the time I saw the patient, blood had been drawn for testing (including HIV). The nurse called PMI, who would not tell us what tests were ordered, but did tell us that I (acting as personal MD in this situation) would not receive a copy of the results.

There are three reasons this is not in the patient's best interest. First, I have been doing physicals for 40 years, and can do a complete exam in about six minutes, blindfolded; but it is not very interesting unless I take a history, mentally make a problem list, and discuss any necessary lifestyle changes with the patient, so that the whole process is an educational one. If I don't get the results of blood and urine tests, a majority of the counseling cannot be done.

Second, do we have any evidence that state law is being followed in the counseling before and after drawing the HIV test? If the insurance company has someone other than a physician do it, they are breaking the law.

Thirdly, how can their lab do clinical testing that has not been referred by a doctor (who has seen the patient)?

I am sending a copy of this letter to the Connecticut State Medical Society, and if they print it, perhaps you would care to answer in their journal.

Thanking you for your answers, I remain

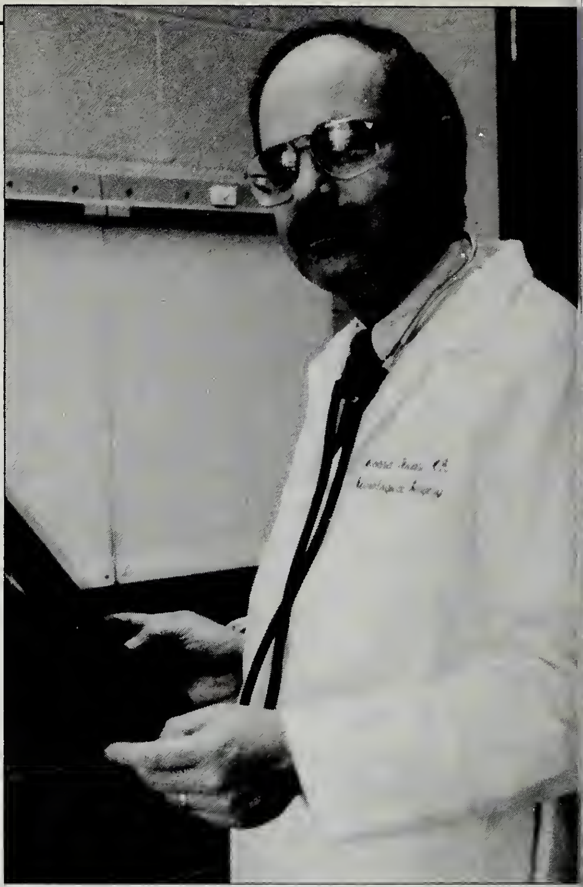
Yours truly,

Donn C. Barton, M.D.

DCB/lsw

cc: Tim Norbeck
Executive Director
Connecticut State Medical Society

Sebastian Gallo, M.D.
Middlesex Hospital



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From the Executive Director's Office

COUNCIL MEETING

Thursday 2 March 1995

Attendance

In addition to the Chairman, Dr. Joseph Czarsty, were Drs. Ahamed, Beck, Bigos, Bobruff, Brooks, Deren, Eslami, Franklin, Freedman, Hollister, Kamens, Katz, Keating, Lesnik, McDonnell, Mushlin, Parke, Sosa, Tesoro, Timmerman, Wetstone, Watson, Wolfson, Zanker.

Also present were: Mr. Norbeck, Ms. Lindquist, Mr. Brunell, Ms. Schaffman, Ms. Norbeck, Ms. Morelli, Mr. Staples, Mr. Sullivan (all CSMS staff), Mr. Mark Schuman, (MCMA), Mr. Joseph Coffey and Mr. Rick Fiorentino, (HCMA Staff), Mr. Mark Thompson (FCMA) Vincent Catrini, M.D. and Doug Hayward, (MDHP), David Thompson, M.D., CSMS-IPA).

Absent were: Drs. Geary, Herzog, Montegut, Petro, Redmond, Sadowski, Scarpa, Schwartz, Van Nostrand.

Reports of Related Organizations

CPRO: Dr. Kamens reported that they are continuing with analysis of data and the cooperative effort with hospitals and physicians, and the results of their studies are getting a positive feed back that physicians want to get involved with the study. CPRO had a visit from the Idaho PRO to look over the Connecticut operation.

M.D. Health Plan: Dr. Catrini, Mr. Hayward (MDHP), and David Thompson, M.D., CSMS-IPA, joined the Council to give an update on current activities of M.D. Health Plan and the IPA. It was reported that the IPA has signed a new 15-year contract with Health Systems International and the IPA's operation would not be affected. It was reported that 70% of the votes are in on the merger and approximately 97% favor the merger.

Dr. Wolfson submitted to the Council a copy of a CSMS-IPA letter that was distributed to its members concerning various policies of the IPA. His concern was that the IPA was implementing a micro-managerial system. Most of the discussion concerned prior authorization from the MDHP Medical Director before rendering service. Dr. Thompson reported that the CSMS-IPA is controlled by a Board consisting of CSMS members and that most items that were listed in the letter that require prior authorization have been in effect for some time and that only a few items have been added to the list. It was reported that there was a great deal of overutilization and something had to be done to bring it under control. The IPA intends to review data and relieve physicians who commonly meet all standards of practice of the need for prior authorization. There was a full discussion of the subject of prior authorization, and Dr. Catrini responded that they always appreciated comments from physicians and, their goal was to work together.

Office of Health Care Access (OHCA): Dr. Edward Kamens, who was recently appointed a member of the Health Care Review Board replacing Dr. Howard Meridy, reported that the governor had decided to cancel the budget allocation for the OHCA Board because of the budget deficit. The OHCA Board and its responsibilities were outlined in legislation that was passed in 1994. It is the intent now to take the work outlined within the legislation, such as health-care planning, data gathering, certificate of need, etc,. and assign these tasks to various other departments without any additional allocations. Dr. Kamens stated that at the present time he saw no movement toward significant health legislation in the State of Connecticut. It was VOTED to reactivate the CSMS Ad Hoc Committee on Health System Reform for Connecticut, to reassess their original proposal, and take into consideration changes in health care that have taken place in the interim.

Report of the President

Dr. Zanker reported that he met with the president and officers of the Connecticut Podiatric Society for the purpose of discussing issues that they could both subscribe to for the purpose of legislative action, and to discuss the concerns on the part of physicians.

He reported that he and Tim Norbeck and Dr. Myron Genel attended the AMA Nathan Davis Award dinner in Washington. Nancy Johnson was selected to receive the award in the area of health care, and, since they sat at the same table with Nancy Johnson, they were able to discuss a number of issues. It was reported that Lonnie Bristow, M.D., AMA President-Elect, was in Connecticut visiting the Yale School of Medicine and the CSMS AMA delegation had a brief opportunity to visit with him, and Dr. Bristow brought them up to date on several pertinent issues.

Report of the Executive Director

Mr. Norbeck reported that the suit against CIGNA concerning the deselecting action in the Hollis-Napolentano case was going forward and that CSMS and the AMA will be filing amicus briefs and that it will probably take six months before the arguments are heard.

It was reported that relative to the product liability reform item in the GOP Contract with America, Speaker Gingrich stated that the American Bar Association is fighting the legislation in order to defend their right to gouge the country, and that the ABA expects attorneys to spend 20 million dollars lobbying against it. The product liability reform limits punitive damages in civil lawsuits, not medical liability reform like a cap on noneconomic damages or pain and suffering. Punitive damages awards against physicians and hospitals are quite rare, unrestricted noneconomic damages are the big problem with medical liability claims. To further complicate matters, if noneconomic damages are not added to the bill, pending legislation could harm physicians by giving plaintiffs an incentive to convert their punitive damages claims into noneconomic claims to get around a $250,000 punitive damages cap. Mr. Norbeck reported that Dr. Zanker and he talked with Nancy Johnson about these reforms in Washington and that the AMA is working on this issue.

It was reported that AARP opened up a new office in Columbus, Ohio, the home of House Budget Committee Chairman, John Kasick, who will have more to say than practically anyone on Medicare cuts. House Ways and Means Chairman Bill Archer gave some indications how the committee might view means-tests for Medicare patients and that he and members were opposed to means-tests for Social Security and Medicare Part A because people prepaid for this program in the form of payroll taxes. However, he was not opposed to a means-test for Medicare Part B, because it was not paid through payroll taxes.

Speaker Training and Survey Follow-up

Dr. Hollister reported that in response to a survey of 6000 physicians regarding interest in participating in a speakers' training program, 10% responded indicating interest in such a program. A training session has been scheduled on May 10 at the Ramada Inn, Meriden, prior to the House of Delegates meeting.

Consumer Pamphlets

On the suggestion of Dr. Hollister, it was VOTED to investigate the possibility of publishing a consumer pamphlet for patients outlining what to look for in an insurance policy. It was noted that the Association of Physicians and Surgeons has published this type of booklet.

Connecticut Medical Insurance Company (CMIC)

Dr. Ahamed reported that Dr. Hollister and Michele Norbeck, Director of the Connecticut Physicians Health Program, made a presentation to the CMIC Executive Committee outlining the program and requesting financial support. Dr. Ahamed reported that the CMIC Board voted to give approximately forty-two thousand dollars a year for the next five years for the implementation of the Physicians Health Program and educational activities. The check will be presented to CSMS at its annual meeting in May. Dr. Ahamed requested that CMIC would like to receive an annual report about the program.

Credentialing Project

Dr. Kamens had been asked by other members of the AMA delegation at the December 1994 AMA interim meeting to develop a model Physician Credentialing Service for CSMS to sponsor. At the previous Council meeting, Dr. Kamens had outlined in detail what steps would have to be taken in the establishment of a credentialing program and it was voted to explore a joint venture to establish a credentialing program. An Ad Hoc Committee was appointed and charged to bring back a formal proposal to the next meeting of the Council. Subsequently Dr. Kamens, Ms. Marcia Petrillo, and Mr. Bruce Ripley of Health Care Directions (HCD) met with the Ad Hoc Committee and described PROCIS (the Professional Credentialing Information Service), which will provide and maintain for physicians an updated and verified computer database on their credentials for responding to requests from hospitals, HMOs and other managed care companies. The service would eliminate the need for physicians and their staffs repetitively to complete new applications or to update credentialing information for existing contracts.

The Ad Hoc Committee worked out a CSMS sponsorship agreement with HCD that CSMS would provide a modest start-up loan for PROCIS to be repaid out of early revenues, and CSMS members would pay lower initial and renewal fees for PROCIS service. A percentage of gross revenue before expenses from Connecticut and seven other nearby states is to be returned to the CSMS Physicians' Guild. The Ad Hoc Committee unanimously recommended to the Council that the agreement be approved. Dr. Kamens, Ms. Petrillo, and Mr. Ripley also had made a presentation to the Fiscal Subcommittee, prior to the meeting of the Council, and it was the consensus of the Subcommittee that the proposal be approved. Following discussion, the Council VOTED to endorse the PROCIS concept and authorize CSMS to develop an acceptable agreement with HCD.

Report of Subcommittee on Preliminary Study of Nominations

With a few amendments, it was VOTED to approve the report of the Subcommittee on Preliminary Study of

Nominations and to transmit the slate of nominees to the House of Delegates for election with the Council's recommendation for approval. It was further VOTED to increase the membership of the Committee on Geriatrics to 20 members.

Legislation Re Construction of Trash-to-Energy Plant in Lisbon

At the last meeting of the Council, a communication was received from the New London County Medical Association suggesting that CSMS consider proposing legislation that would rescind the permit granted to construct and operate a trash-to-energy plant in Lisbon, Conn. The letter stated that until the cities and towns of Connecticut demand the full capacities of the presently operating facilities, no additional incinerators should be constructed. It was noted that the only demonstrable "need" was that of the operators, not the state, who would be importing refuse from out-of-state to operate to capacity. CSMS was requested to support legislation that imposes a moratorium on the granting of permits until a "need" is demonstrated, the public health concerns are addressed, and the well-being of Connecticut safeguarded. Following discussion that more actual data was required on the issue, it was VOTED to table the motion, until the next meeting, that CSMS oppose, for health reasons, the construction of an incinerator in Lisbon. The motion was taken off the table and Dr. Lesnik provided comprehensive data concerning the subject and it was VOTED that CSMS oppose, for health reasons, the construction of an incinerator in Lisbon.

Nomination for Positions on AMA Council

It was VOTED to recommend to Lonnie Bristow, M.D., President-Elect of the AMA, the consideration of Philip Merideth, M.D., J.D., of New Haven, for appointment to a resident physician seat on the AMA's Council on Ethical and Judicial Affairs coming vacant in July 1995.

CSMS Task Force to Recommend Changes to the Impaired Physician Statutes

At the suggestion of Dr. Neil Grey, Medical Director of the Statewide Physician Health Program, it was VOTED to form a CSMS Task Force in order to recommend changes to the Impaired Physician Statutes. CSMS representatives appointed to the Task Force are as follows:

CSMS Vice-President, Chairman of the Task Force
Chairman, Committee on Physician Health
Medical Director, Physician Health Program
Chairman, Committee on Legislation
Member, Committee on Legislation
(FCMA representative)

Administrative Changes Necessary to Assure Appropriate Controls and Implementation of Physician Health Program

Cam Staples outlined several amendments to the CSMS Bylaws and Charter that would be necessary in the structuring of the Physician Health Program to assure control by CSMS, to strengthen peer review protection, and to enable the program to accept charitable contributions. The amendment to the Charter would make it possible for CSMS to establish and maintain a separate fund, under the provisions of Section 501 (c) (3), of the IRS code, exclusively for charitable, scientific, and educational purposes, to be known as the CSMS Physicians' Health and Education Fund. It was VOTED to approve this amendment to the Charter. The amendment to the CSMS Bylaws would be to create under Article X, Section 3, a Physician Health Committee. It was VOTED to present to the House of Delegates an amendment to establish a Physician Health Committee, as proposed. It was further VOTED to table a motion that a special meeting of the CSMS House of Delegates be called immediately prior to the regular meeting with only one item on the agenda, to provide for an expedited process to amend the CSMS Bylaws as detailed above.

CSMS Committee on CME

The CSMS Committee on CME submitted a proposed fee scale for CSMS CME Accreditation Surveys with the request that they be approved by the Council. It was VOTED to approve the recommendations of the committee.

Dates of House of Delegates Meetings

It was VOTED to approve the following dates for House of Delegates Meetings at the Ramada Inn, Meriden:

Wednesday, 10 May 1995
Wednesday, 15 November 1995
Wednesday, 8 May 1996
Wednesday, 13 November 1996

CSMS PHYSICIAN PLACEMENT SERVICE

The Society maintains the Physician Placement Service as a *free* service to the medical profession, hospitals, and communities in Connecticut.

***Opportunities* should be typed, double-spaced copy on letterhead and submitted to CSMS, Physician Placement Service, 160 St. Ronan Street, New Haven, CT 06511 (203) 865-0587 or fax to (203) 865-4997. These will be published as space permits and will be distributed to physicians making inquiries of such *opportunities*.**

***Physicians wishing to locate* in Connecticut may call the office requesting opportunities in their specialty. Also, candidates are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.**

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

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Southeastern Connecticut Ambulatory Care Center seeking part-time physician to work approximately 20 hours per week. Please send CV to: Box 835, Colchester, CT 06415.

Full/part-time position in hospital-owned ambulatory care center for BC/BE physician (IM, FP, PEDI, Occupational Medicine, ER). Moonlighters welcome; malpractice insurance provided. Please call or send CV: Nancy Zsiba, M.D., Bradley Community Medical Center, 360-1 North Main St., Southington, CT 06489 or (203) 628-2860, Fax (203) 621-9372.

Full-time or part-time position available immediately in busy walk-in center in Enfield. Strong internal/family practice background preferred. Competitive salary with benefits and excellent work environment. Please call or send CV to: Susan T. Lindquist, M.D., 15 Palomba Dr., Enfield, CT 06082. Phone: (203) 745-1684.

Full-time or part-time position available for an internist or family practitioner in well-established ambulatory care center in Branford, CT. Highly competitive salary and benefit package; very pleasant working conditions; located on beautiful Connecticut shoreline in family community. Attractive hours. Please call or send CV to: Harry Ardolino, M.D., Medical Director, Coastline Medical Center, 9 Business Park Dr., Branford, CT 06405, Phone (203) 481-0818.

Ambulatory care center in southwestern Connecticut seeks physician BC/BE for full-time/part-time employment. Well-rounded background in the treatment of acute minor illnesses and injuries required. Excellent patient relation skills a must. Wonderful community. Excellent staff and pleasant working conditions. Competitive salary and benefits package offered. Please submit CV to: Mr. Louis Basilicato c/o F.F.M.C., 525 Tunxis Hill Cutoff, Fairfield, CT 06432 and/or call (203) 384-2273.

Full-time physician needed for walk-in center in Stamford. 40 hour week. Primary care specialists only (emergency medicine, internal medicine, family practice). Please call (203) 324-8800 or fax CV to (203) 975-1283.

Part-time position, one or two days per week, with weekends also, if desired, available in well-established walk-in center in Trumbull, CT. Broad general medical and minor surgical skills required. Competitive salary, excellent support staff and pleasant working conditions. Available immediately or June 1, 1995. Call Richard Zangrillo, M.D., (203) 261-6111, and send CV to: First Aid Immediate Care Medical Center, Two Daniel Farms Rd., Trumbull, CT 06611.

Physician wanted full-time/part-time for ambulatory care center. Competitive salary, benefits, profit sharing - great hours. Call or send resume to: Med-HELP Medical Center, P.O. Box 1120, Bristol, CT 06010, (203) 584-8900.

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Family/General Practice in Ambulatory Care Center providing acute and continuing care. Well rounded medical background and excellent patient relation skills required. Part-time clinical staff position available. Competitive compensation, enjoyable work setting, pleasant ancillary staff. Send CV or call for further information: David E. Wilcox, MD, FACEP, PhysicianCare, 28 Main St., East Hartford, CT 06118. Phone (203) 569-8644.

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BC/BE internist to join rapidly expanding internal medicine group in the New Haven, CT area. Area known for excellent private and public schools. Numerous Yale University sponsored cultural events and activities. Attractive compensation and benefit package. For more information, please call Dr. Carmen Balzano at (203) 230-4170.

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Central Connecticut—Hospital-based occupational medicine opportunity. Position is ideal for a BC Family Medicine, Internal Medicine, Emergency Medicine or General Surgeon physician. Clinical responsibilities include evaluation and treatment of work-related injuries, accidents and illnesses, and conducting pre-placement and other physical exams. Strong clinical skills in musculoskeletal disorders are needed. Excellent communication skills; strong commitment to patient care. Competitive salary and benefits package. Please call us at (800) 892-3846 or fax us your CV at (203) 585-3525.

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Well-established, busy four-Pediatrician practice in Stratford seeks BC/BE Pediatrician. Full-time position with competitive salary leading to full partnership. Send CV with salary request to: Karen Laugel, M.D., 7365 Main St., Stratford, CT 06497.

Part-time, BC/BE pediatrician to replace departing associate. Northern Fairfield County practice close to community hospital with level II pediatrics and neonatology. Call Dr. John Gundy at (203) 775-1118.

Exceptional opportunity to join a pediatric practice of four Board Certified pediatricians. Located in shoreline community, 5 miles from Yale-New Haven Medical Center, our chief hospital affiliation. Salary $130,000.00/year. Malpractice insurance included. Buy-in option also available. One in four coverage. Call: (203) 248-4846, any evening after 8:00 P.M.

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GASTROENTEROLOGY

Available July 1, 1995. Licensed in Massachusetts and New York. American Board certified in Internal Medicine, eligible in Gastroenterology. M.D. at New York University. Internship and residency at Mount Sinai Hospital, New York. Special expertise advanced therapeutic endoscopy training at the Brigham and Women's Hospital in Boston, Massachusetts.—pancreaticobiliary endoscopy, endoscopic ultrasound, enteroscopy. Would like to join a group, associates or institutional practice in a large community. Please respond to: Alfred D. Roston, M.D., 175 Freeman St. Apt. 714, Brookline, MA 02146. Telephone: (617) 739-5087.

GENERAL PRACTICE

Available immediately for weekends to progress to full-time in one year. Licensed in Connecticut. M.D. at Cairo University Medical School, Cairo, Egypt. Internship at Rhode Island Medical Center. Residency at Iowa University. Would like to join an institutional practice in a small to medium-sized community. Please respond to: CSMS c/o GP/MG.

GENERAL SURGERY/BREAST SURGERY

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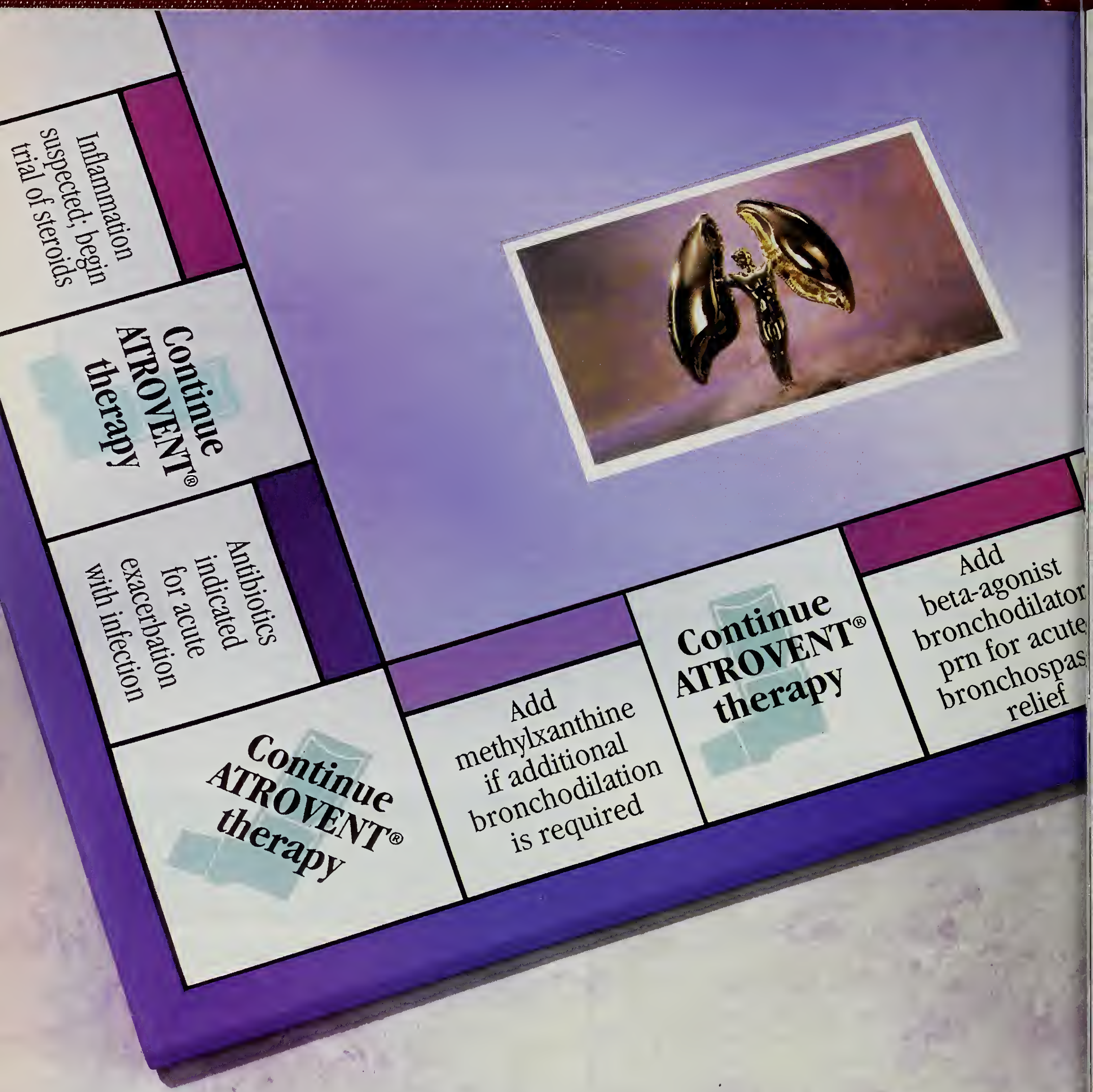
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Antepartum Diagnosis of Pancreatic Carcinoma: A Case Report

ERIK J. SIMCHUK, B.A., III, JOHN P. WELCH, M.D.,
AND ROCCO ORLANDO III, M.D.

ABSTRACT—A pregnant patient found to have primary carcinoma of the pancreas is discussed. The extreme rarity of this condition is emphasized. There are only a handful of cases reported in the world literature, and the diagnoses in these reports were made almost exclusively *post partum*.[1] We could find only two reported cases in which the diagnosis was made *ante partum*, those by Gamberdella in 1984[2] and by Duff and Greene in 1985.[3] The case we present demonstrates the difficult management decisions that arise when the diagnosis of pancreatic carcinoma is made in the midst of gestation.

Case Report

A 39-year-old, caucasian female presented on 21 October 1993, at 16 weeks estimated gestational age, with left upper quadrant pain and moderate anorexia. Her pain had begun two months earlier as generalized abdominal discomfort, progressing to left lower quadrant pain with anorexia. At that point she sought the advice of her obstetrician, who assumed that the symptoms were associated with the pregnancy. She gave no history of abdominal pain, alcohol abuse, gallstones, lipid abnormalities, diabetes mellitus, trauma, medications during pregnancy, or familial pancreatic disease. She had had an elective termination of pregnancy in 1977, a decision made because of radiation exposure for treatment of a melanoma that had been found in the first trimester. We were unable to discover the depth or stage of this melanoma in the record. Attempts to recover this information have been unsuccessful.

In the succeeding month her symptoms worsened. She developed chills, increased flatus, acholic stools, and darkening of the urine. Her pain had now intensified and localized to the left upper quadrant of her abdomen with radiation to the epigastrium and back. An outpatient abdominal ultrasound demonstrated mild distention of the gallbladder with wall thickening and markedly dilated common bile and pancreatic ducts. She was hospitalized, now complaining of persistent pain in the right upper quadrant, anorexia, and nausea.

The physical examination was significant for a temperature of 39°C, a flat abdomen with normally active bowel sounds, mild right upper quadrant and epigastric tenderness to deep palpation, and no extrauterine masses.

Table 1.—Clinical Laboratory

Variable	*Values*
Sodium (mEq/L)	133
Potassium (mEq/L)	3.6
Chloride (mEq/L)	3.6
Bicarbonate (mEq/L)	24
Blood urea nitrogen (mg/dL)	10
Creatinine (mg/dL)	0.6
Calcium (mg/dL)	1.88
Magnesium (mg/dL)	0.57
Phosphate (mg/dL)	0.7
Total bilirubin (mg/dL)	2.1
Hematocrit (%)	34.6
White blood cell count	8,500
Platelets (10^3/cu mm)	116
Aspartate aminotransferase (U/L)	235
Alanine aminotransferase (U/L)	496
Lactate dehydrogenase (U/L)	417
Alkaline phosphatase (U/L)	201
Amylase (U/L)	30
Lipase (U/L)	26
Transferrin (mg/dL)	25
Prealbumin (mg/dL)	15
Partial thromboplastin time (sec)	26.5
Hepatitis B surface antigen	neg.

ERIK J. SIMCHUK, B.A., III, Hartford Hospital; JOHN P. WELCH, M.D., Hartford Hospital, Clinical Professor of Surgery, University of Connecticut School of Medicine, Farmington; ROCCO ORLANDO III, M.D., Hartford Hospital. Institution at which work was performed: Hartford Hospital

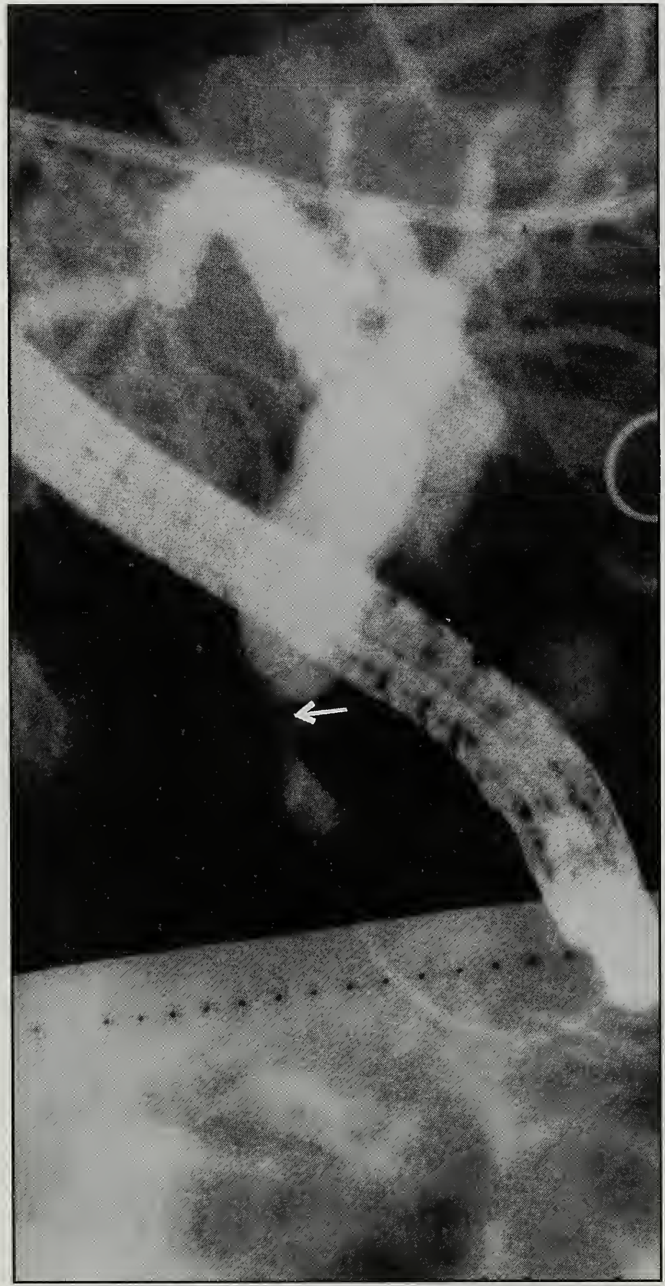


Figure 1.—View from ERCP demonstrating narrowing of the common bile duct 3 cm above the ampulla (arrow).

Endoscopic retrograde cholangiopancreatography (ERCP) demonstrated a 1 cm area of marked narrowing of the common bile duct 3 cm above the ampulla (Fig. 1). The ducts above this stricture were greatly dilated, and the cystic duct was patent. A biopsy taken was nondiagnostic. After a balloon was moved through the stricture, a stent was placed and viscous, black bile flowed into the duodenum. A flat x-ray film of the abdomen was taken after the ERCP. This suggested stones within the gallbladder, yet the etiology of the stricture was still uncertain. The patient's symptoms improved after the stent placement, and she began to tolerate a regular diet.

A computed tomographic (CT) scan of the abdomen demonstrated intra- and extrahepatic biliary obstruction and moderate dilatation of the main pancreatic duct. The obstructive process related to an ill-defined mass in the pancreatic head with extension posteriorly into the retroperitoneal tissues between the celiac axis and the superior mesenteric artery (Figs. 2 and 3). No focal liver lesions were visualized, and the spleen was only mildly enlarged. A CT-guided biopsy of the mass demonstrated low-grade, well-differentiated adenocarcinoma.

After extensive discussion of the options available to her, the patient was scheduled for a possible pancreaticoduodenectomy. She received terbutaline during the procedure. A large, unresectable tumor of the head of the pancreas was found infiltrating the superior mesenteric vein with enlarged periaortic lymph nodes. Biopsies of common bile duct and periaortic lymph nodes revealed metastatic adenocarcinoma consistent with a pancreatic primary (Fig. 4). There was no evidence of duodenal obstruction. Biliary diversion was achieved with a choledochoduodenostomy and a feeding jejunostomy was placed to supplement nutrition in the postoperative period.

The oncology consultant felt that the patient was ineligible for experimental chemotherapy in her gravid condition, and that termination of the pregnancy in order to begin a more aggressive regimen of chemotherapy was not likely to prolong her survival. In view of the findings, and after thorough discussions with the surgical team, the patient chose to continue the pregnancy. She was discharged on a pain-control regimen through a Dupen catheter and soon returned to her home state to complete her pregnancy with support from her extended family. We did discover that she had a healthy boy at about 28 weeks, delivered by cesarean section, and died a few weeks after having the child. The patient died on 29 January 1994 in Portland, Oregon, approximately three months following the operation. We have no record of an autopsy having been performed.

Discussion

Pancreatic carcinoma is an almost uniformly fatal malignancy, with one of the lowest five-year survival rates (1-2%). It is now the fourth most common malignancy in the United States (excluding skin), behind carcinomas of the lung, breast, and colon; and it is responsible for approximately 5% of cancer deaths. However, pancreatic carcinoma is relatively uncommon in women of childbearing age. We identified only 65 women under 40 years of age with pancreatic carcinoma recorded in the Connecticut State Tumor Registry over a 50-year period (1943-93). Donegan found that only 2.8% of more than 11,000 cancers in women aged 15 to 44 years were of pancreatic origin.[4] Additionally, pancreatic carcinoma is exceedingly rare in a pregnant woman. Our case is only the

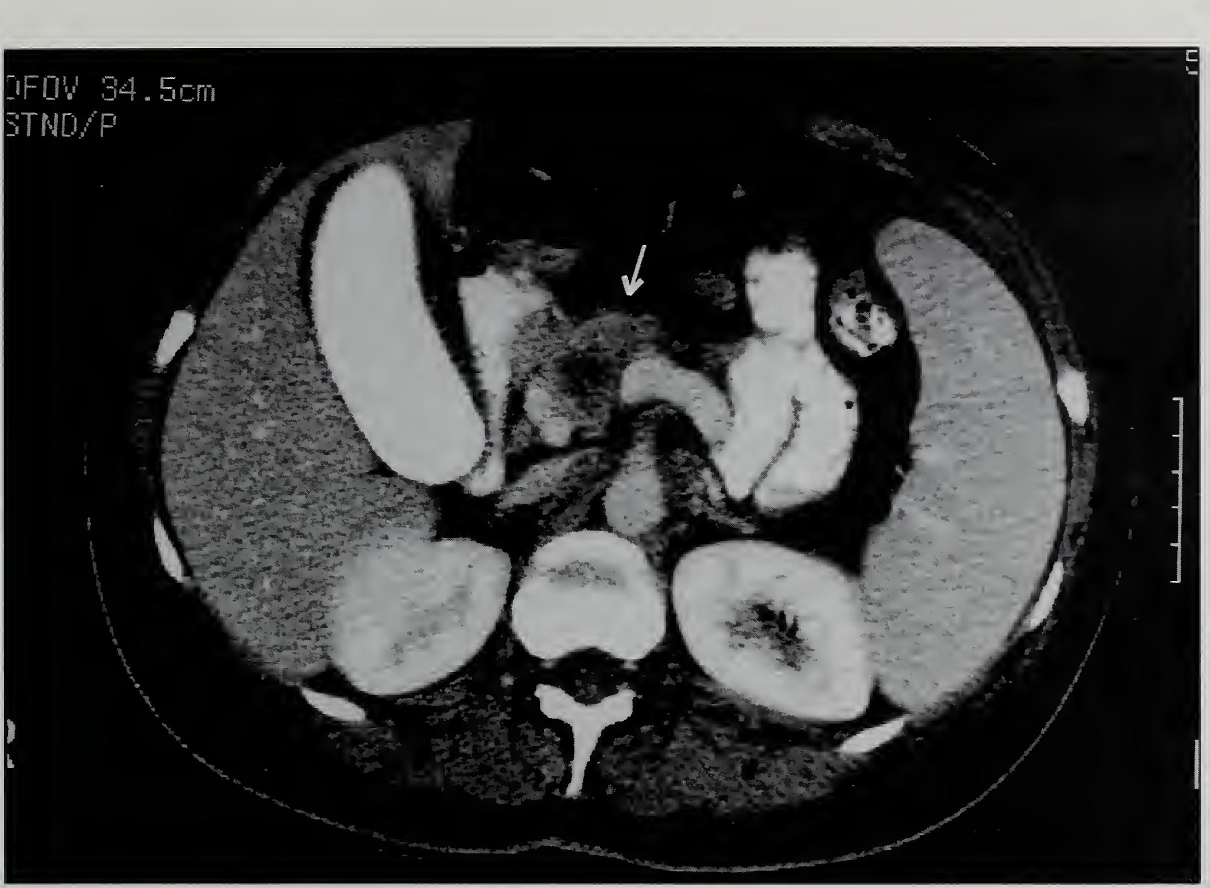
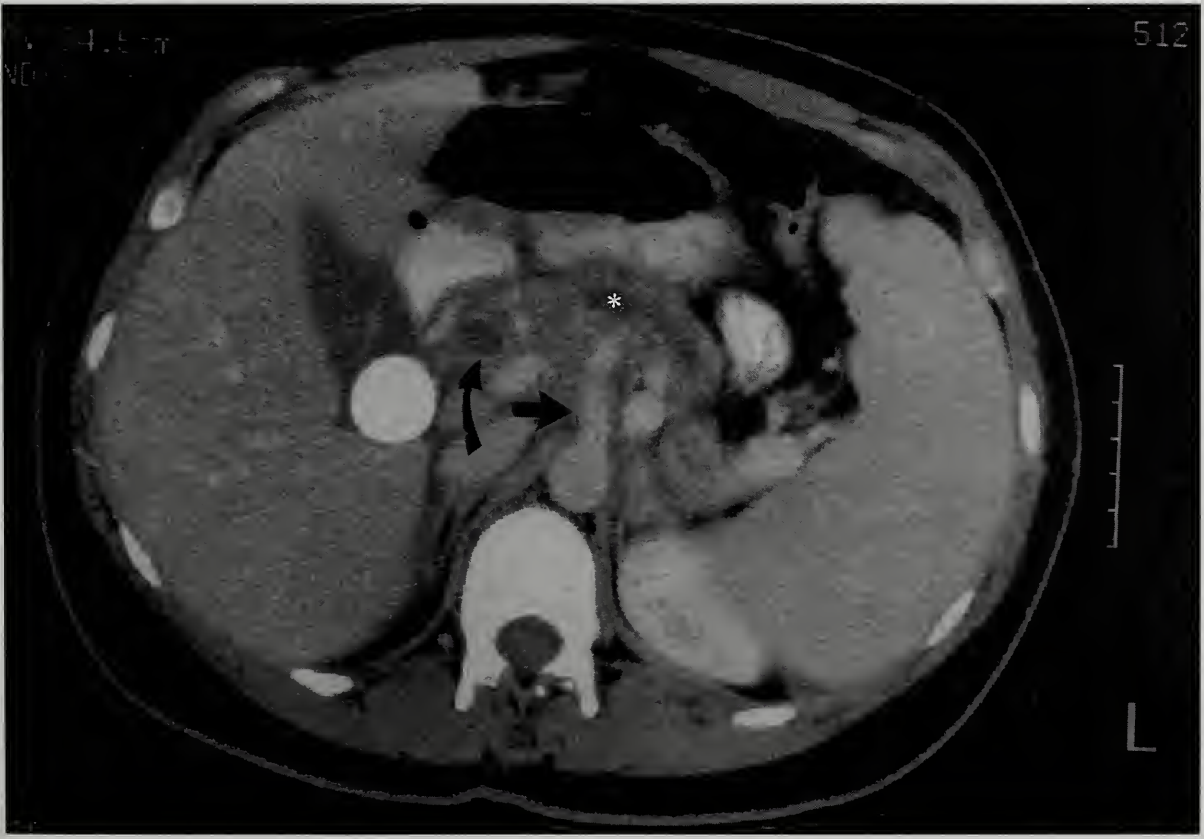


Figure 2.—View from the CT scan showing a mass in the pancreatic head (arrow).

Figure 3.—Another cut from the CT scan includes a dilated pancreatic duct (*) and common bile duct (curved arrow), as well as encasement of the superior mesenteric artery (straight arrow).



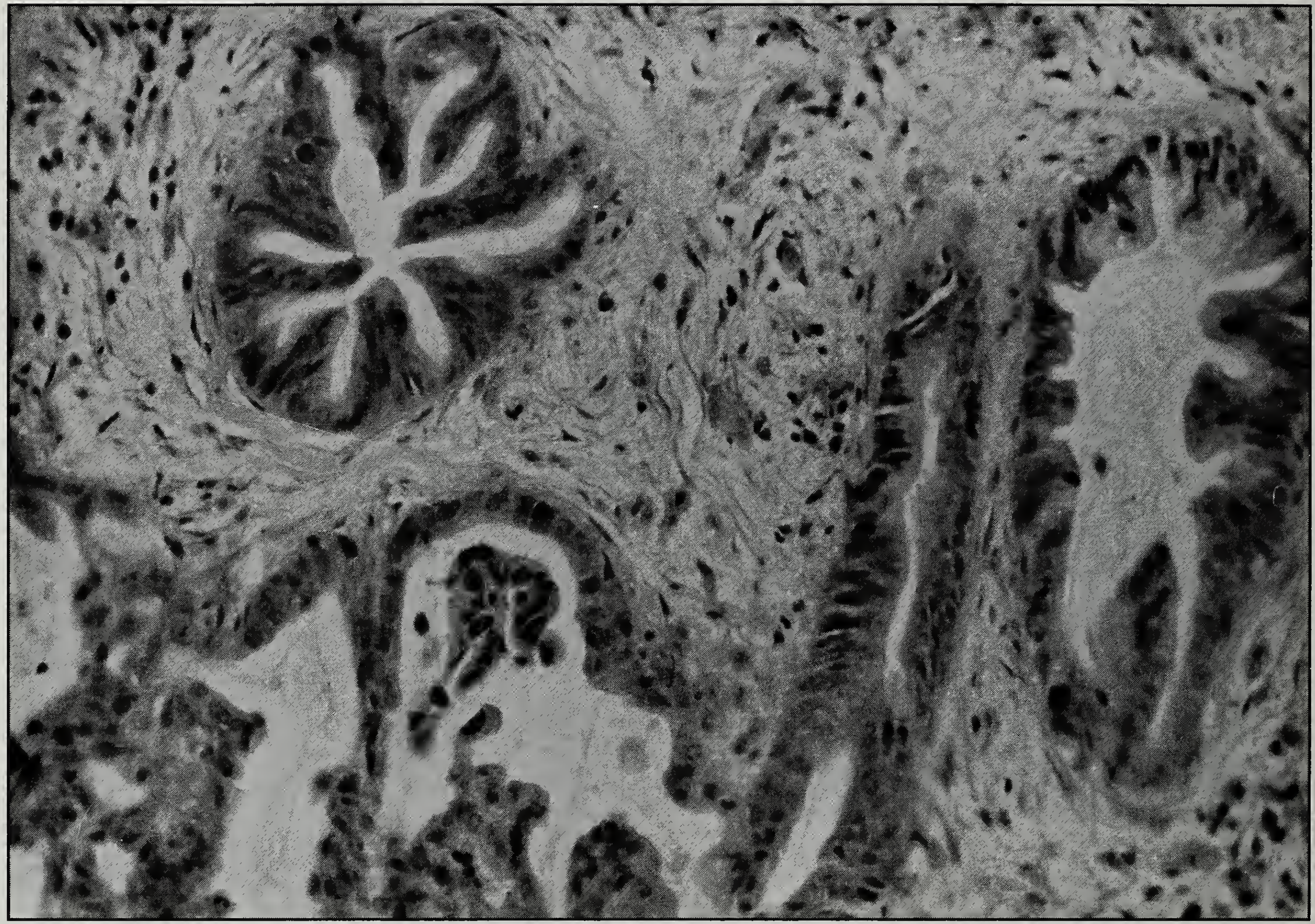


Figure 4.—Metastatic pancreatic carcinoma in regional lymph node. There is no evidence of metastatic melanoma. Magnification x 160.

third reported in the world literature in which the diagnosis was made *antepartum*.

The majority (90%) of pancreatic malignancies are adenocarcinomas, usually arising from ductal epithelium. The pathogenesis of this lesion remains unclear, but risk factors include advanced age, cigarette smoking, diabetes mellitus, a high-lipid diet, and forms of chronic pancreatitis. Greater than 75% of pancreatic carcinomas involve the head of the pancreas.

The failure to diagnose pancreatic carcinoma at an early, curable stage is a major obstacle to its successful management. Excellent diagnostic tools for detecting pancreatic carcinoma are ultrasound and ERCP, while CT scan, angiography, and needle biopsy can function as confirming tests.[5] The diagnosis of carcinoma in the head of the pancreas is often made earlier in its course than with tumors located in the body and tail because of the early development of jaundice.

The correct diagnosis may be difficult to make when pancreatic carcinoma occurs in the gravid female, because the clinical picture is obscured by gestational symptoms. Nevertheless, the clinician must be aware of the rare possibility of pancreatic carcinoma in these women.

Interestingly, this was the second primary cancer of pregnancy in this patient. One could speculate that the primary condition of immunologic tolerance that occurs in pregnancy may in some way be associated with the immunologic tolerance of carcinogenesis. Clearly, further investigation in both areas needs to be done before any such conclusions may be drawn.

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Readmission Rates, 30 Days and 365 Days Postdischarge, Among the 20 Most Frequent DRG Groups, Medicare Inpatients Age 65 or Older in Connecticut Hospitals, Fiscal Years 1991, 1992, and 1993

JOHN HENNEN, PH.D., HARLAN M. KRUMHOLZ, M.D.,
MARTHA J. RADFORD, M.D., AND THOMAS P. MEEHAN, M.D.

ABSTRACT—This report presents readmission rates following inpatient admissions for the 20 most frequent DRG categories among Medicare inpatients age ≥ 65 years, at Connecticut acute-care hospitals during the three-year period FY 1991 to FY 1993. We provide frequency distributions of the 30-day and 365-day readmission rates within these 20 DRG categories. Among the 184,490 discharges of elderly Medicare beneficiaries, discharged alive, who were included in the 20 most frequent DRG categories in the three-year study period, the crude 30-day readmission rate was 15.6%; the crude 365-day readmission rate was 46.9%. By gender, the crude 30-day readmission rate for women was 15.1%; the corresponding rate for men was 17.8%. This gender readmission difference occurred in the context of a significant age differential; on average, the females were 2.5 years older than the males. By age group, the crude readmission rates were: age 65 to 74 years, 16.5%; age 75 to 84 years, 16.8%; age ≥ 85 years, 14.6%. With the exception of the DRG category representing cancer (all types), within which there was a significant decrease in readmission rates over the three years examined, the crude readmission rates for the DRG categories were found to be stable over the three-year study period.

Introduction

In previous reports,[1,2] the most frequent reasons for inpatient admission among Medicare patients at Connecticut hospitals and mortality rates following these admissions were documented. This report summarizes 30-day and 365-day postdischarge readmission rates among the 20 most frequent DRGs. This analysis was made for Medicare patients age ≥ 65 years in Connecticut hospitals during the three-year period FY 1991 to FY 1993 (1 October 1990 to 30 September 1993).

Methods

For this report, we assembled data from inpatient billing claims used for invoicing the Health Care Financing Administration (HCFA) for hospital services provided Medicare beneficiaries age 65 years or older at admission, as previously described.[1] Data on discharges from Connecticut hospitals during the three-year period comprise the database for this report. Records with similar DRGs were grouped into closely associated subgroups, with one exception: "cancer," which included all DRGs with the words "neoplasm" or "malignancy" in the DRG name. The 20 most frequent DRG groups formed in this way, listed in Table 1, comprise the dataset used for the analyses reported here.

We obtained readmission data by linking inpatient claims together using the Health Information Claim (HIC) number, which identifies each Medicare beneficiary and is recorded in all claims submitted to the HCFA. Hospital inpatient claims were sorted into discharge date order for each HIC number, and readmission indicators at 30 days and 365 days after discharge were recorded for each index discharge if there was at least one readmission within each

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Table 1.—Twenty Most Frequent DRG Categories, Medicare Beneficiaries Age ≥ 65 Years, Connecticut Hospitals, Excluding In-Hospital Deaths. Fiscal Years 1991, 1992, and 1993

		Number Cases	DRG category
1.	000	12,640	Cancer, all types
2.	014-015	14,257	Stroke, TIA
3.	079-080	3,462	Respiratory infections/inflammations
4.	088-096-097	9,935	COPD, bronchitis, asthma
5.	089-090	13,135	Pneumonia, pleurisy
6.	106-107	5,386	Coronary bypass procedures
7.	112	5,958	Percutaneous cardiovascular procedures
8.	121-122-123	9,910	Acute myocardial infarction (AMI)
9.	124-125	9,751	Circulatory disorders (except AMI)
10.	127	19,165	Heart failure and shock
11.	138-139	9,917	Cardiac arrhythmias/conduction disorders
12.	140,143	15,754	Angina pectoris, chest pain
13.	148-149	6,433	Major bowel procedures
14.	174-175	7,636	GI hemorrhage
15.	182-183	8,206	Esophagitis, gastroenteritis
16.	209	10,282	Major joint/limb procedures
17.	210-211	6,392	Hip and femur procedures (except joint replacement)
18.	296-297	6,860	Metabolic, nutritional disorders
19.	320-321	4,590	Kidney and urinary tract infections
20.	478-479	4,821	Other cardiovascular procedures
	Totals	**184,490**	

of these two time periods. Transfers were excluded from the study database; that is, transfers from one hospital to another hospital were counted only among the data of the transferred-to hospital and not included among the discharges of the transferred-from hospital. In-hospital deaths were also excluded from the study database. Readmission indicator variables, for readmission within 30 days and 365 days of discharge, were defined for each index hospital stay to be "one," if there was found at least one readmission within 30 days or 365 days of the index discharge date, and to be "zero" otherwise.

Using the resulting three-year claims database, we formed tabulations of the indicators for readmission within 30 days and within 365 days for the 20 DRG groups. We also made tabulations of 30-day and 365-day readmission data for subgroups of hospitalized patients defined by age at admission (65 to 74 years, 75 to 84 years, ≥ 85 years), gender, and year of admission (FYs 1991, 1992, and 1993). For comparison purposes, we obtained 30-day and 365-day readmission rates among all hospital stays (ie, without regard to DRG category) of Connecticut Medicare beneficiaries (age ≥ 65 years) during the three-year study period.

Postdischarge deaths were determined by linkage of the discharge records with Social Security Administration data, using the Medicare beneficiary's HIC number as the linkage key. We assessed the association of postdischarge readmission to postdischarge death by correlating the 30-day readmission and 30-day mortality rates across DRG categories among patients discharged alive. For four representative DRG categories, including cancer, congestive heart failure, pneumonia/pleurisy, and major limb/joint procedures, we determined survival days postdischarge and days postdischarge to death or readmission, whichever occurred first. We then calculated Kaplan-Meier survival curves indicating probabilities of survival and of readmission-free survival within the 365-day period following hospital discharge.

Results

The number of discharge records and the readmission rates at 30 days and 365 days postdischarge in each of the 20 most frequent DRG categories are shown in Table 2. There were 184,490 discharge records and 112,302 different persons in the study dataset.

As expected, the readmission rates varied widely among the 20 DRG categories. Thirty-day postdischarge readmission rates among the DRG categories ranged from 7.8% (DRG 209, major joint and limb procedures) to 23.3% (DRG 124-125, circulatory disorders, except acute myocardial infarction). One-year postadmission readmission rates showed even greater variation, ranging from 26.4% (DRG 209, major joint and limb procedures) to 57.6% (DRG 127, heart failure and shock). Comparison readmission rates for all 360,600 Medicare discharges in Connecticut (age ≥ 65) were 15.6% at 30 days and 46.9% at 365 days.

Several DRG categories had high readmission rates at both 30 days and 365 days after discharge. These DRGs included DRG 127, heart failure and shock (22.1% and 57.6%); DRG 088-096-097, chronic obstructive pulmonary disease, bronchitis, and asthma (18.0% and 53.8%); and DRG 478-479, other cardiovascular procedures (19.1% and 55.1%). The two DRG categories relating to orthopedic surgical procedures were found to have relatively low readmission rates at both 30 days and 365 days. Major joint/limb procedures (DRG 209), as noted above, had readmission rates at 30 days and 365 days of 7.8% and 26.4%, respectively; the corresponding readmission rates for hip and femur procedures (DRG 210-211), were 10.3% and 30.7%.

Table 2.—Total Medicare Discharges, 20 Most Frequent DRG Subgroups, Age ≥ 65 Years, Connecticut Hospitals, Excluding In-Hospital Deaths. Fiscal Years 1991, 1992, and 1993. Thirty/365-Day Readmission Rates.

				Readmission Percent	
		DRG Category	**Number**	**30 Days**	**365 Days**
1.	127	Heart failure and shock	19,165	22.1	57.6
2.	014-015	Stroke, TIA	14,257	15.8	38.9
3.	140,143	Angina pectoris, chest pain	15,754	14.2	41.3
4.	000	Cancer, all types	12,640	21.3	43.8
5.	089-090	Pneumonia, pleurisy	13,135	14.0	43.5
6.	121-122-123	Acute myocardial infarction	9,910	17.2	40.5
7.	209	Major joint/limb procedures	10,282	7.8	26.4
8.	138-139	Cardiac arrhythmias/conduction disorders	9,917	15.1	42.4
9.	088-096-097	COPD, bronchitis, asthma	9,935	18.0	53.8
10.	124-125	Circulatory disorders (except AMI)	9,751	23.3	42.7
11.	182-183	Esophagitis, gastroenteritis	8,206	14.6	42.8
12.	174-175	GI hemorrhage	7,636	12.3	37.9
13.	296-297	Metabolic, nutritional disorders	6,860	18.4	45.5
14.	148-149	Major bowel procedures	6,433	11.0	37.7
15.	210-211	Hip and femur procedures (except joint replacement)	6,392	10.3	30.7
16.	112	Percutaneous cardiovascular procedures	5,958	13.8	45.8
17.	106-107	Coronary bypass procedures	5,386	15.2	34.3
18.	478-479	Other cardiovascular procedures	4,821	19.1	55.1
19.	320-321	Kidney and urinary tract infections	4,590	14.7	44.0
20.	079-080	Respiratory infections/inflammations	3,462	18.7	47.7
		Totals	**184,490**	**16.25**	**42.25**
Comparison Data: FY91-FY93		Discharge—all causes (age ≥ 65)	360,597	15.62	46.90

Table 3.—Total Medicare Discharges, 20 Most Frequent DRG Subgroups, by Gender. Age ≥ 65 Years, Connecticut Hospitals, Excluding In-Hospital Deaths. Fiscal Years 1991, 1992, and 1993. Thirty-Day Readmission Rates.

			Males		**Females**	
	DRG Category		**Number Cases**	**Readmit Percent**	**Number Cases**	**Readmit Percent**
1.	127	Heart failure and shock	8,092	22.9	11,072	21.5
2.	014-015	Stroke, TIA	5,965	16.5	8,290	15.3
3.	140,143	Angina, chest pain	6,288	16.0	9,465	13.0 *
4.	000	Cancer, all types	4,695	27.1	7,944	17.9 *
5.	089-090	Pneumonia, pleurisy	6,162	15.6	6,973	12.6 *
6.	121-122-123	Acute myocardial infarction	4,918	16.2	4,992	18.2 *
7.	209	Major joint/limb procedures	3,157	9.2	7,124	7.1 *
8.	138-139	Cardiac arrhythmias	4,150	15.8	5,767	14.6
9.	088-096-097	COPD, bronchitis, asthma	3,945	19.8	5,989	16.9 *
10.	124-125	Circulatory disorders	5,308	25.8	4,443	20.3 *
11.	182-183	Esophagitis, gastroenteritis	2,696	15.9	5,509	13.9
12.	174-175	GI hemorrhage	3,404	12.6	4,232	12.1
13.	296-297	Metabolic disorders	2,364	20.1	4,496	17.4 *
14.	148-149	Major bowel procedures	2,697	11.2	3,735	10.9
15.	210-211	Hip and femur procedures	1,287	14.1	5,104	9.4 *
16.	112	PTCA	3,541	12.9	2,416	15.0
17.	106-107	CABG	3,582	14.1	1,804	17.4 *
18.	478-479	Other cardiovascular procedures	2,444	18.4	2,376	19.9
19.	320-321	Kidney infections, UTI	1,741	17.0	2,849	13.3 *
20.	079-080	Respiratory infections	1,865	21.5	1,597	15.5 *
		Totals	**78,301**	**17.8**	**106,177**	**15.1**

*Statistically significant gender difference (*P* < .01).

As indicated in Table 3, the 30-day readmission rates for several of the 20 DRG categories differed substantially by gender. In two of the DRGs (AMI, DRG 121-123, and coronary artery bypass graft (CABG, DRG 106-107), readmission rates among males were significantly lower than the corresponding rates among women. For several other of the DRG categories, the male readmission rates were significantly higher than the corresponding female rates. These DRG categories included angina/chest pain (DRG 140,143); cancer, all types; pneumonia/pleurisy (DRG 089-090); major joint/limb procedures (DRG 209); COPD/bronchitis/asthma (DRG 088-096-097); circulatory disorders, except AMI (DRG 124-125); metabolic disorders (DRG 296-297); hip/femur procedures (DRG 210-211); kidney infections/urinary tract infections (DRG 320-321); and respiratory infections (DRG 079-080). These gender differences were statistically significant (*P* < .01 for each).

Table 4 indicates that readmission rates for several DRG categories were significantly lower among the very old (age ≥ 85 years) than in the two other age groups (65 to 74 years and 75 to 84 years). This age difference was especially pronounced in some DRG categories, including heart failure/shock (DRG 127), stroke/TIA (DRG 014-015), cancer, all types (several DRGs), pneumonia/pleurisy (DRG 089-090), metabolic diseases (DRG 296-297), and respiratory diseases (DRG 079-080). It is notable that this group of DRG categories includes several DRGs with relatively high postdischarge mortality rates (cf, Reference 2), in which the very old have significantly higher death rates than the other two age groups.

In contrast, Table 4 shows that for several DRG catego-

Table 4. Readmission Rates. 30 Days Postdischarge, 20 Most Frequent DRG Subgroups, by Age Category. Connecticut Hospitals, Excluding In-Hospital Deaths. Fiscal Years 1991, 1992, and 1993.

			Age 65-74		**Age 75-84**		**Age ≥85**	
		DRG Category	**Cases**	**Percent**	**Cases**	**Percent**	**Cases**	**Percent**
1.	127	Heart failure/shock	5,983	23.1	8,515	22.8	4,667	19.6 *
2.	014-015	Stroke, TIA	4.814	16.9	6.305	15.8	3.138	13.9 *
3.	140,143	Angina, chest pain	7,183	13.7	6,498	14.8	2,073	14.5
4.	000	Cancer, all types	6,318	22.6	4,921	21.2	1,401	16.1 *
5.	089-090	Pneumonia, pleurisy	4,113	14.7	5,568	14.5	3,454	12.5 *
6.	121-122-123	Acute myocardial infarction	4,203	16.0	4,126	17.8	1,581	19.1 *
7.	209	Major joint/limb procedures	4,577	6.3	4,227	8.6	1,478	10.1 *
8.	138-139	Cardiac arrhythmias	4,095	15.2	4,144	15.6	1,678	13.6
9.	088-096-097	COPD, bronchitis, asthma	4,747	18.1	3,994	18.7	1,194	15.5
10.	124-125	Circulatory disorders	6,140	23.5	3,363	23.3	248	17.3
11.	182-183	Esophagitis, gastroenteritis	3,409	14.5	3,353	14.9	1,444	13.7
12.	174-175	GI hemorrhage	2,558	10.9	3,292	13.4	1,786	12.2
13.	296-297	Metabolic disorders	2,128	21.7	2,788	19.1	1,944	13.6 *
14.	148-149	Major bowel procedures	2,977	10.6	2,588	11.3	868	11.4
15.	210-211	Hip/femur procedures	1,189	9.9	2,592	10.2	2,611	10.7
16.	112	PTCA	3,898	12.9	1,891	14.9	169	20.7 *
17.	106-107	CABG	3,548	13.6	1,753	18.1	85	22.4 *
18.	478-479	Other cardiac procedures	2,505	19.0	1,838	19.1	478	19.9
19.	320-321	Kidney infections	1,327	15.5	1,966	15.2	1,297	13.2
20.	079-080	Respiratory diseases	936	20.4	1,499	20.2	1.027	15.0 *
		Totals	**76,648**	**16.5**	**75,221**	**16.8**	**32,621**	**14.6 ***

*Statistically significant variation among age groups (*P* < .01).

ries the very oldest group had higher than average readmission rates. These DRGs include AMI (DRG 121-123), major joint/limb procedures (DRG 209), percutaneous cardiovascular procedures (DRG 112), and CABG (DRG 106-107).

Fiscal Year	Number of Discharges	Readmissions within 30 days of Discharge	Rate per 100 Discharges
1991	58,758	9,592	16.32
1992	62,621	10,186	16.27
1993	63,111	10,201	16.16
All	184,490	29,979	16.25

The discharge record counts and the numbers of readmissions within 30-days of discharge for the 20 DRG categories for the three fiscal years separately were as tabulated above.

With one exception (cancer) among the 20 DRGs, the separate DRG categories had low year-to-year variation in 30-day readmission rates. For the 19 DRGs excepting cancer, the range in 30-day readmission rates among the three fiscal years did not exceed 2%. For cancer, however, the 30-day readmission rate changed significantly over the three-year period, as shown here:

Cancer	Fiscal Year	Number of Discharges	Readmissions Rate per 100 Discharges	Mortality Rate per 100 Discharges
	1991	4,293	23.7	13.8
	1992	3,302	21.1	14.3
	1993	4,045	18.9	15.7

Table 5.—Correlations between Readmission Rates and Postdischarge Mortality Rates, by Age Category. Fiscal Years 1991, 1992, and 1993 Discharges.*

Age Category	Number of Cases	Correlation 30-Day Readmission-Mortality	Correlation 365-Day Readmission-Mortality
65-74	29,537	0.75	0.72
75-84	30,484	0.74	0.75
≥ 85	12,167	0.25	0.25
All Ages	**72,188**	**0.68**	**0.71**

*Excludes in-hospital deaths, with one discharge record selected randomly for persons with multiple discharges.

The year-to-year change for cancer readmission rates indicated on the previous page is highly statistically significant (*P* < .01). Interestingly, this drop in readmission rates occurred at the same time that the 30-day postdischarge mortality rates for cancer increased.

Table 5 shows the correlation coefficients between readmission rates and postdischarge mortality rates (at 30 days and at 365 days postdischarge) across the 20 DRG categories, by age category. Across all ages, these correlation coefficients were 0.68 (30 days) and 0.71 (365 days), both highly statistically significantly different from zero (*P* < .001 for each). However, within the oldest age category, age ≥ 85 years, the correlation coefficients were much smaller, 0.25 for both 30 days and 365 days.

In Fig. 1, a scatterplot of 30-day readmission rates and 30-day postdischarge mortality rates depicts the positive correlational associations indicated in Table 5. It is notable in Fig. 1, that, while the overall association between readmission rates and mortality rates is positive, there are several DRG categories with relatively low 30-day postdischarge mortality rates that have high 30-day readmission rates. Two such DRG categories are DRG 124-125 (circulatory disorders except AMI) and DRG 478-479 (other cardiovascular procedures).

Fig. 2 shows postdischarge survival and readmission-free survival rates for four representative DRG categories: cancer, congestive heart failure, pneumonia/pleurisy, and major limb/joint procedures. Among cancer and conges-

Figure 1.—Readmission rates and mortality rates at 30 days postdischarge, 20 most frequent DRGs, fiscal years 1991, 1992, and 1993, age ≥ 85 years.

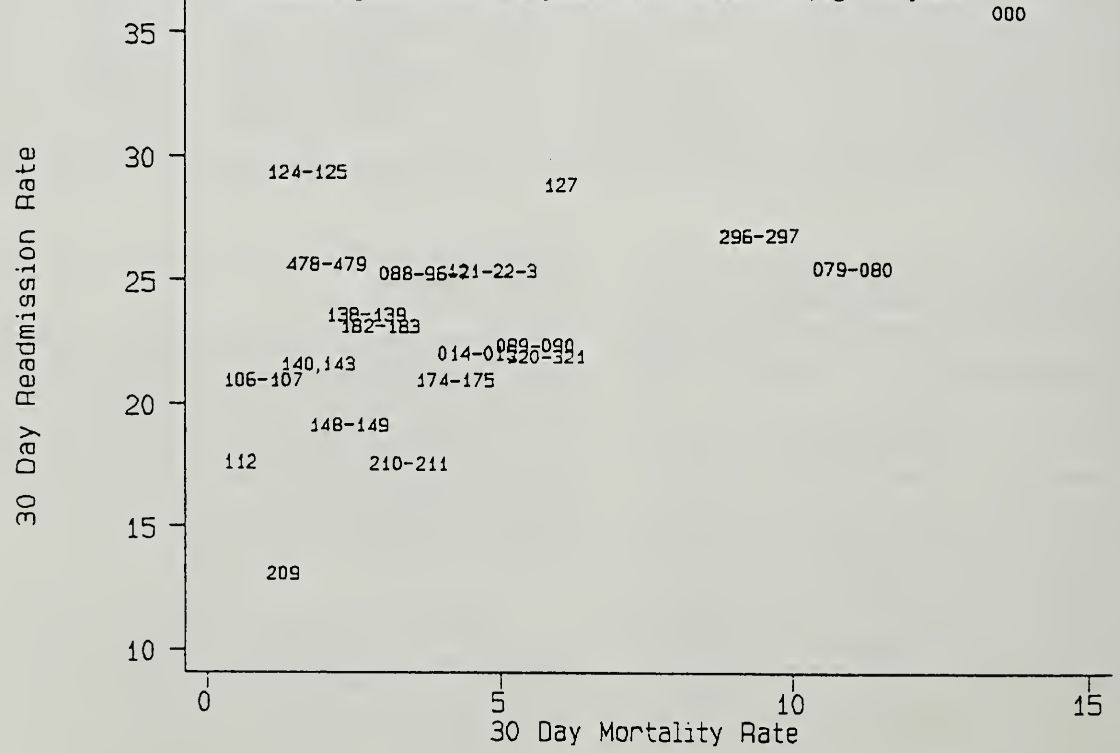
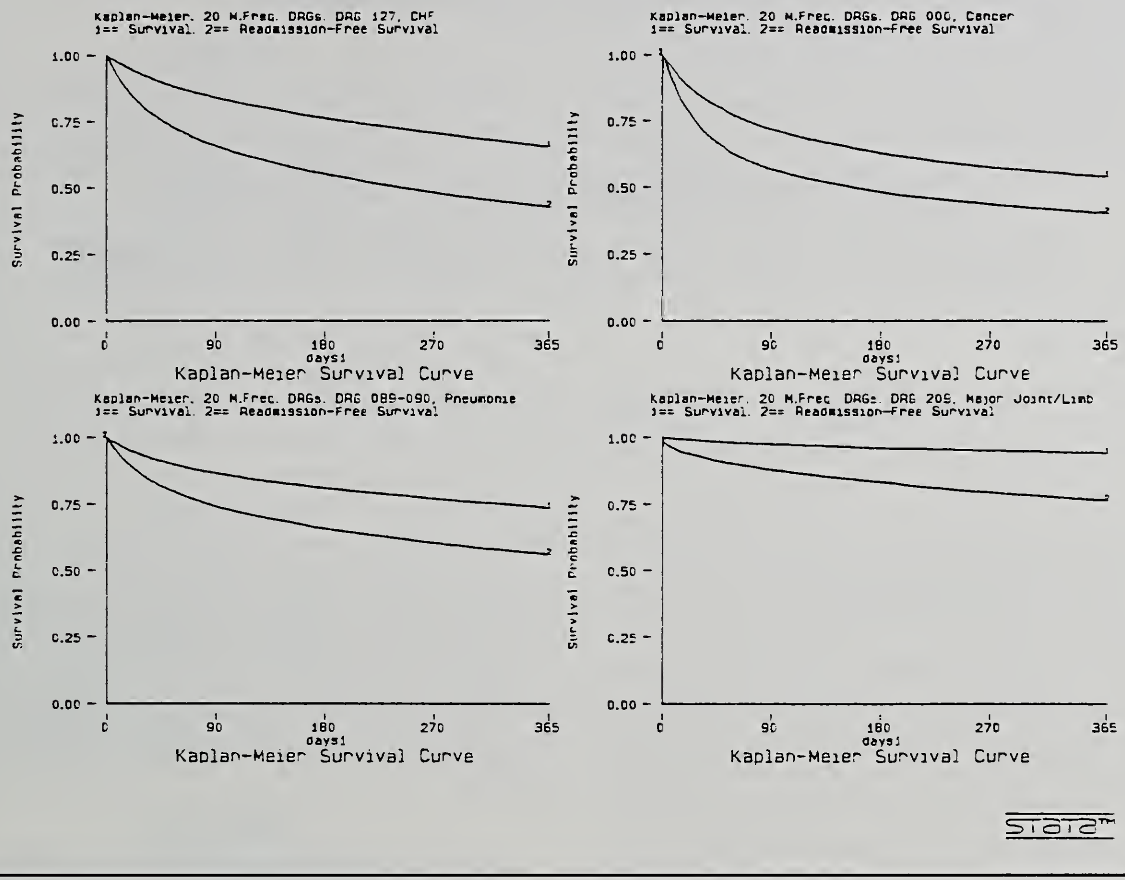


Figure 2.—Kaplan-Meier Survival Curves. Postdischarge survival and readmission-free survival. Four DRG categories—congestive heart failure, cancer, pneumonia-pleurisy, and major joint/limb procedures. Fiscal years 1991, 1992, and 1993, Medicare beneficiaries, age ≥ 65 years.



tive heart failure patients discharged alive, only 34% and 38%, respectively, survived for a year without readmission. The corresponding survival percentages among pneumonia and major limb/joint procedure patients were 49% and 75%, respectively. Median days of readmission-free survival (for patients who were readmitted or died within a year of discharge) among these four DRG categories were: cancer, 39 days; congestive heart failure, 54 days; pneumonia/pleurisy, 64 days; and major joint/limb procedures, 107 days. For comparison purposes, median readmission-free survival days among all discharged Medicare patients age ≥ 65 years who were readmitted or died within a year, for the three-year period, was 58 days.

Discussion

The interpretation of readmission data is challenging. Readmission following discharge from an acute-care facility is an outcome event that may be the result of several factors including worsening of condition in the natural course of the primary disease process, admission due to comorbid conditions, complications of care provided in the index hospitalization, and premature discharge in the index hospitalization. Readmission rates may provide potentially useful indicators of quality of inpatient care if these several causal factors can be reliably identified. Needed for this to have meaning, however, are baseline data on the frequency with which readmissions occur among patients within at least the most frequently occurring diagnostic categories.

Despite interpretation difficulties, it is apparent, in these data, that there is a hefty burden of morbidity represented among the 20 most common DRGs. Over 42% of all Medicare discharged inpatients assigned one of the 20 DRGs can be expected to be back in the hospital within one year. And, of the remainder, about 15% will die within that year (data not shown).

Postdischarge readmission rates varied widely among the various DRG categories, with 30-day readmission rates ranging from 1.3% (DRG 112, PTCA) to 22.4% (DRG 79-80, respiratory infections and inflammations). Readmission risk was found to be strongly concentrated in several major DRG categories, with six DRGs accounting for about 51% of the readmissions occurring within 30 days of discharge. It is notable that four of these six high readmission-risk categories are cardiovascular-related DRGs: DRG 127 (congestive heart failure), DRG 124-125 (circulatory disorders except AMI), DRG 014-015 (stroke and TIA), and DRG 140,143 (angina pectoris and chest pain). By themselves these comprise 36.7% of all the 30-day readmissions among the 20 most frequent DRGs.

Postdischarge readmission rates were substantially lower for several DRG categories among the very old (age ≥ 85 years) compared to patients in the 65 to 74 and 75 to 84 age ranges. As expected, this held especially strongly in those DRG categories for which postdischarge mortality was high. The explanation for this, of course, is that death precludes readmission, and there were more deaths in the older-age category.

Of interest are the gender differences in readmission rates for several of the DRG categories. As noted above, females had significantly lower 30-day readmission rates in several of the DRG categories, including angina/pectoris, cancer, pneumonia/pleurisy, COPD/bronchitis/asthma, circulatory disorders, metabolic disorders, hip/femur procedures, kidney/urinary tract infections, and respiratory infections. The causes for these differences are not known.

The association between readmission rates and mortality rates is complex and appears to vary considerably by DRG category. Fig. 2, depicting survival and readmission-free survival rates in the four major DRG categories, suggests that there may be several distinct observable patterns in this association: high mortality rates and relatively low readmission rates (cancer); relatively high mortality rates associated with relatively high readmission rates (congestive heart failure); moderately high mortality and readmission rates (pneumonia); and relatively low mortality rates associated with moderate to high readmission rates (major hip/limb procedures). One implication of this heterogeneity is that outcomes analyses involving readmission outcomes should control for mortality experience specific to the diagnostic or procedure category being examined.

Summary

Rates of readmission following discharge of elderly Medicare beneficiaries from Connecticut acute-care hospitals vary substantially among the 20 most frequent DRG groups. Five DRG categories (cancer, congestive heart failure, acute myocardial infarction, stroke, and pneumonia) account for over 65% of all readmissions within 30 days of discharge. Perhaps contrary to expectation, the very old category (age ≥ 85 years) experienced substantially lower postdischarge readmission rates than the other age categories (age 65 to 74, age 75 to 84) within several DRG categories. There were notable gender differences in postdischarge readmissions among the 20 most frequent DRG categories, with female Medicare beneficiaries having significantly lower 30-day readmission rates in several of the DRG categories. Especially in high-risk subgroups, postdischarge-readmission risk is associated with postdischarge risk of death, depending on DRG cateaory.

Future reports in this series will provide information about lengths of stay, procedure rates, total charges, hospital characteristics, and related data based on the present dataset.

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SAVE THE DATE:
Connecticut Health Lawyers Association
1995 SYMPOSIUM

On 9 June 1995, Connecticut Health Lawyers Association (CHLA) will hold its annual Symposium from 8:30 A.M. to 3:45 P.M. The theme of this year's symposium is "Legal Challenges for the Health Care Professional in Today's Changing Environment." The symposium will feature panels of attorneys and physicians discussing the future of private practices and networks and the legal issues involved in practice mergers and acquisitions. The symposium will also include presentations by CHLA members on representing individual practitioners before state licensure authorities as well as the annual Health Law Update. A book of legal articles for attorneys and health professionals will be provided each attendee.

Among the participants will be Tom Greeson, Esq., General Counsel to the American College of Radiology, Ted Zanker, M.D., President of Connecticut State Medical Society; Bob Walzer, M.D., Esq., attorney to health care professionals and managed care networks; Lansing Crane, Esq., health law attorney; Bob Langer, Esq., antitrust attorney; and many others. The exact New Haven location will be announced. Meanwhile, questions may be directed to Bob Walzer at (203) 972-5017.

Roth Spots Seen on Ophthalmoscopy: Diseases with Which They May Be Associated

PHILIP M. FALCONE, M.D. AND WAYNE I. LARRISON, M.D.

Abstract—Roth spots seen on fundoscopic examination (white-centered hemorrhages) were classically described as septic emboli in patients with subacute bacterial endocarditis (SBE). Many physicians have considered them pathognomonic for this entity. More recent evidence suggests, however, that they are nonspecific and may be found in other disease states. A review of the pathogenesis of these white-centered hemorrhages will be provided, along with some diseases other than SBE in which they may occur.

THE ophthalmoscopic finding of Roth spots (Fig. 1) often raises an immediate concern that the patient may have subacute bacterial endocarditis (SBE). Multiple sets of blood cultures are drawn and the ophthalmologist is usually consulted to confirm these findings since white-centered hemorrhages are thought to be pathognomonic of this entity.

This belief is based on the work of the German pathologist Moritz Roth. In 1872 he published two classic papers describing hemorrhages with white centers that he observed on funduscopic examination in patients with SBE.[1] He postulated that the white centers represented embolic bacterial infiltrates producing localized retinal abscesses. The emboli were presumed to have originated from the endocardium. The associated hematin was believed to be caused by extrusion of blood products along the infected site.

It has been stated that Roth confirmed his findings with postmortem examinations using light microscopy of serial sections of the lesions. His findings were subsequently corroborated by others, and the term "Roth spots" was coined by Litten in 1878.[2]

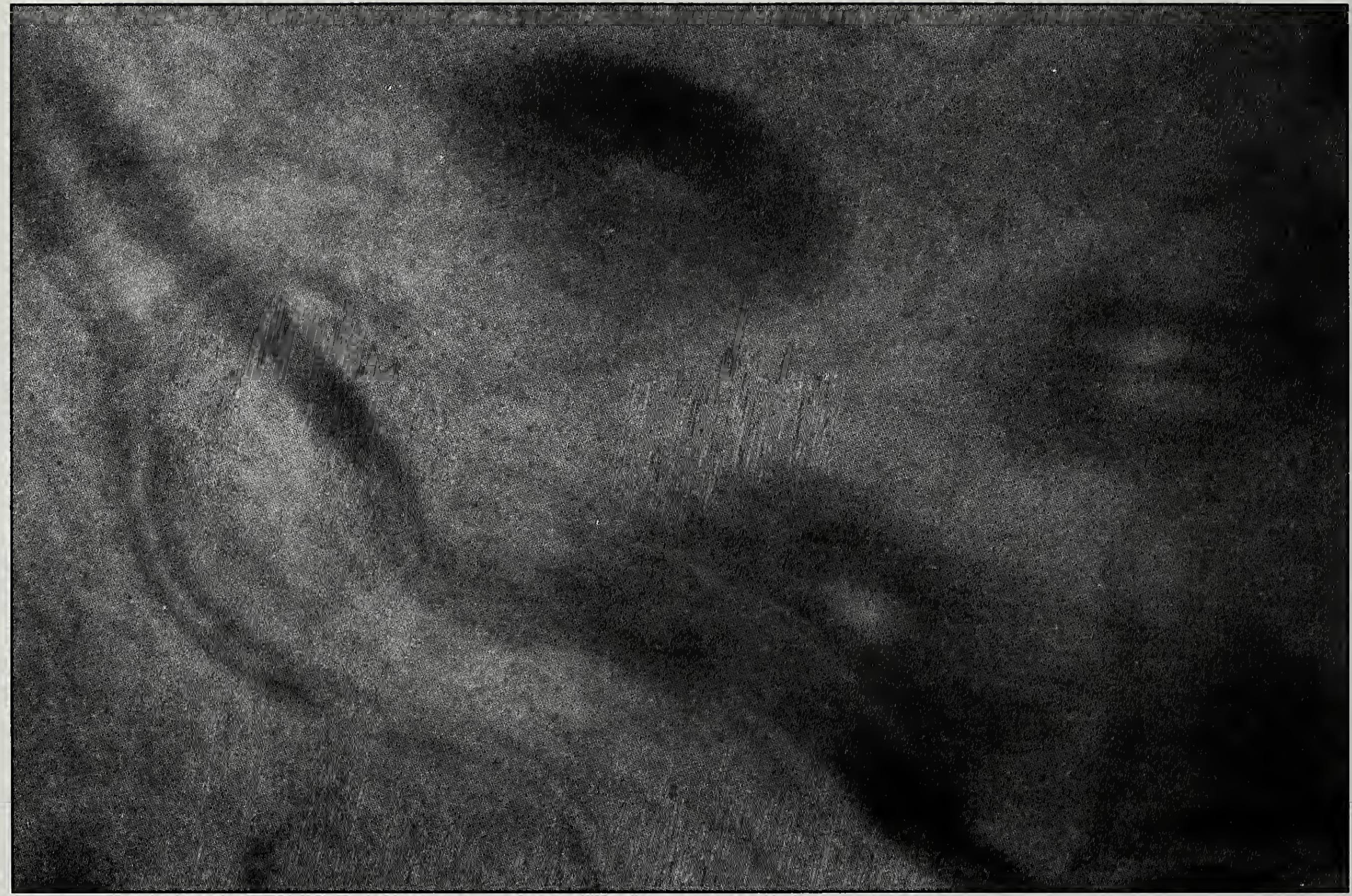
As retinal examination became more commonplace and instrumentation improved, white-centered hemorrhages were identified in other disease states. This led to confusion regarding the nature of the lesions and the term "pseudo" Roth spots was used in the absence of endocarditis. It is now generally accepted that there are many causes of Roth spots and numerous conditions where they can be observed (Table 1).

Roth spots may be seen in severe anemia often in association with vitamin B_{12} deficiency. Here it appears that the pathologic mechanism is an anoxic event or a sudden increase in venous pressure with resultant small capillary rupture in the inner retinal layers. With release of hematin the coagulation process is triggered and there is development of a fibrin hemostatic plug.[3]

Roth spots are occasionally seen in poorly controlled hypertensive states and in various rheumatologic diseases such as systemic lupus erythemaeous (SLE) with or without coexistent hypertension. These rheumatologic disorders are characterized by vaso-occlusive phenomena and there may be associated ocular inflammation such as iridocyclitls or scleritis. This can be helpful in the differential diagnosis.

The finding of Roth spots in the various leukemic disorders is interesting since the white material can represent disseminated leukemic foci within the retinal tissues. However this finding does not appear to have any prognostic significance.

PHILIP M. FALCONE, M.D., Connecticut Retina Consultants, P.C., Clinical Instructor; Yale-New Haven Hospital; WAYNE I. LARRISON, M.D., Connecticut Retina Consultants, P.C., Clinical Instructor; Yale-New Haven Hospital.



Figure—Numerous white-centered hemorrhages (Roth spots) in a patient with severe anemia.

Occasionally Roth spots may be seen in the diabetic patient. Although "cotton-wool" spots are often observed the observation of a true white-centered hemorrhage is unusual and one should be suspicious of an occult process.

Roth spots in the neonatal period require special attention since they may result from birth trauma or can develop secondary to increased intracranial pressure. We must also consider the possibility of shaken-baby syndrome; especially if there are other mitigating findings.[4]

One may occasionally observe Roth spots in an HIV infected patient. While a significant percentage of patients infected with HIV are intravenous drug abusers in whom endocarditis must be ruled out, Roth spots may be idiopathic or seen with an associated anemia. In this instance they may promptly resolve if the red blood cell count is normalized. The presence of Roth spots is not suggestive of cytomegalovirus retinitis.[4]

Table 1.—Known Causes of Roth Spots[3,4,6,7,8]

Subacute bacterial endocarditis (SBE)	Anemia
Leukemia	Hypertension
Multiple myeloma	Diabetes
Systemic lupus erythemaeous (SLE)	Anoxia
Polymyositis	CO poisoning
Dermatomyositis	HIV
Scleroderma	Neonatal birth trauma
Relapsing polychondritis	Complicated maternal delivery
Polyarteritis nodosa	Battered child
Wegener's granulomatous	Prolonged\Difficult endotracheal intubation
Giant cell arteritis	Intracranial hemorrhage
Behcet's disease	

In summary Roth spots or white-centered hemorrhages can be seen in SBE but often represent a clinical challenge and diagnostic dilemma for the physician since they are nonspecific. It is important to realize that a thorough systemic evaluation is always indicated because they are never a normal finding and can be observed in diseases with associated high morbidity.

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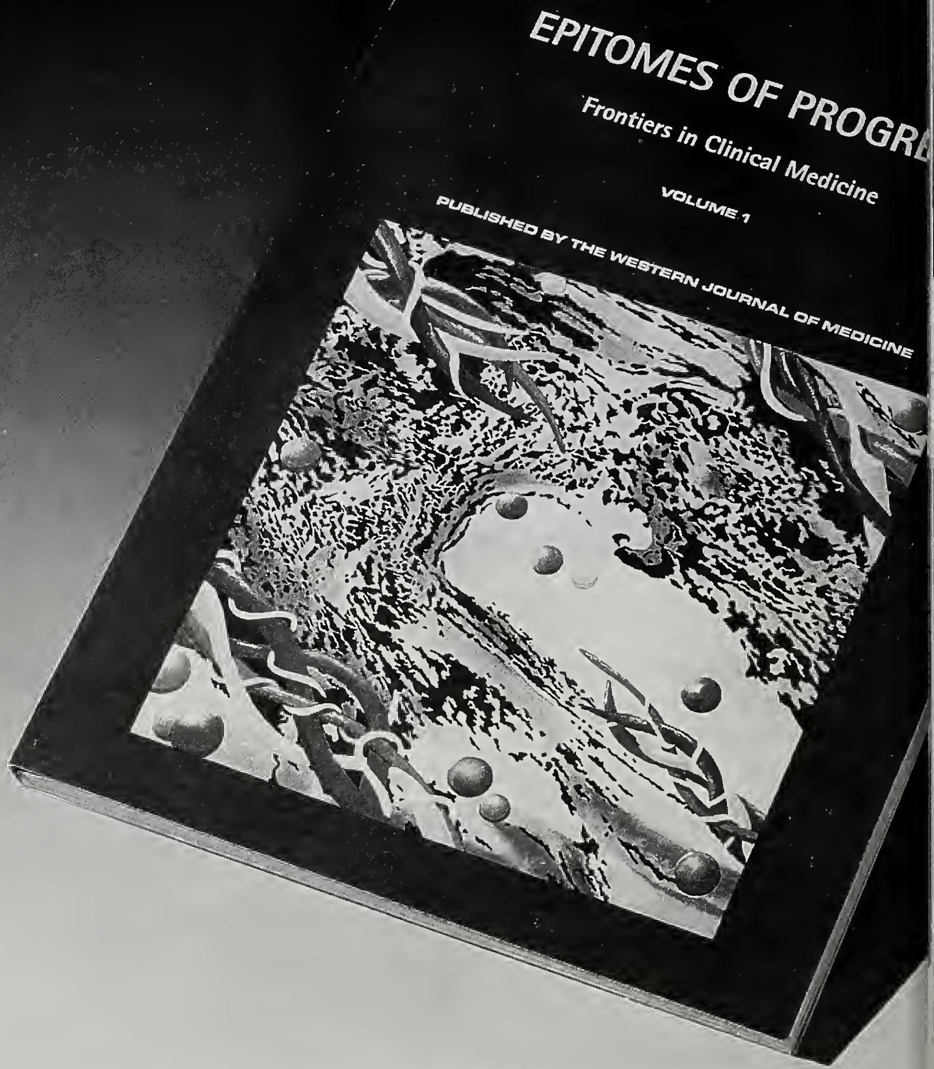
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Important Advances in Clinical Medicine

Pediatrics

Susan B. Conley, M.D., Section Editor

The Council on Scientific Affairs of the California Medical Association presents the following epitomes of progress in pediatrics. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and clinical importance. The items are presented in simple epitome, and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, researchers, and scholars to stay abreast of progress in medicine, whether in their own field of special interest or another.

The epitomes included here were selected by the Advisory Panel to the Section on Pediatrics of the California Medical Association, and the summaries were prepared under the direction of Susan B. Conley, M.D., and the panel.

New Antiepileptic Drugs for the Treatment of Childhood Epilepsies

THE goal of the pharmacologic treatment of childhood epilepsy is to reduce seizure activity and avoid drug toxicity. Meeting this goal has been a challenge because many of the current drugs have potentially serious adverse effects associated with their use, such as bone marrow suppression, liver toxicity, and decline in cognitive function. Therefore, there is a pressing need for new drugs that are effective and safe for use in children.

For the first time since 1978, new antiepileptic drugs have been approved by the US Food and Drug Administration for the treatment of seizures. Although there are several established drugs for treating epilepsies, about 25% of all patients are refractory to medical treatment. New medications are therefore needed for these patients.

Felbamate, introduced in 1993, is the first of the new generation of antiepilepsy drugs to be used in the treatment of childhood epilepsies. It is mainly effective in patients with partial seizures. It is also used to reduce seizure activity in children with the Lennox-Gastaut syndrome—a severe childhood encephalopathy associated with intractable seizures of several types. During experimental trials, this drug was found to be well tolerated and safe. Common side effects include loss of appetite, weight loss, and insomnia. During the first year of use after its introduction, however, several cases of aplastic anemia and acute hepatic failure have emerged. Because of these serious problems, the use of felbamate is limited to children with severe seizures in whom alternative medications are not effective.

Gabapentin has also been approved for use in the United States in the past two years. It was designed as an analogue of the inhibitory neurotransmitter γ-aminobutyric acid (GABA), but the drug has no effect on the brain GABA system and the mechanism of its action is unknown. The medication is to be used as an add-on agent in the treatment of refractory partial-onset seizures. Interestingly, this drug is not protein-bound, does not interact with other drugs, and is excreted entirely by the kidneys without undergoing metabolism. It has been approved for use in children older than 12 years. The experience with younger children is limited.

Lamotrigine is a novel drug that appears to be effective for a wide range of seizure types. Its mechanism of action may be related to blocking of the sodium channel and inhibiting the release of the excitatory amino acid

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glutamate. In children, it appears to be particularly effective for partial seizures, generalized tonic-clonic seizures, absence seizures, and atonic seizures seen in patients with the Lennox-Gastaut syndrome. It has been used by about 80,000 patients in Europe and other countries, and its use is well tolerated by children. Lamotrigine has recently been approved in the United States for use in adults with epilepsy. Dizziness, blurred vision, and ataxia are the most frequent side effects. Rash is the most common side effect leading to discontinuation and occurs particularly frequently when the drug is given with valproic acid. Lamotrigine interacts substantially but predictably with other drugs.

Vigabatrin is another novel agent that appears promising as therapy for children with a wide range of seizure types. Vigabatrin increases brain GABA levels by irreversibly inactivating GABA aminotransferase, an enzyme that breaks down GABA. The drug has been used extensively in Europe and Canada for its apparent effectiveness against infantile spasms, the Lennox-Gastaut syndrome, and partial seizures. In 1983 U.S. clinical trials came to an abrupt halt because this medication caused microvacuolization of the white matter in animals. This has not occurred in humans with exposure to the drug, however, and studies have resumed. Somnolence is the most frequent side effect. Overall, its use is well tolerated, although psychotic symptoms can occur rarely in adults.

Recent advances in antiepileptic drug development hold the promise of substantial improvement in the treatment of childhood epilepsies. Of all the new drugs, lamotrigine and vigabatrin hold the most promise. They have a broad spectrum of efficacy, and their use is well tolerated. They appear to be particularly useful in severe childhood epileptic syndromes. These two drugs should be available soon in the United States for use in children. Considering our inexperience with and possible toxicity of these agents, neurologic consultation is suggested.

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Wolf P: New antiepileptic drugs already registered. *Epilepsia* 1994; 35(suppl 5):S22-S24.

New Drugs for Cystic Fibrosis Lung Disease

SINCE the discovery of the molecular basis for cystic fibrosis with the cloning of the gene in 1989, there has been an explosion of new information on the pathogenesis of the disease. Concomitantly, the development of new therapies based on a better understanding of the pathophysiology of the progressive obstructive airways disease that characterizes the pulmonary component has resulted in rapid, revolutionary changes in management that presage the transformation of this lethal disease into a manageable chronic illness.

The approximate cause of the progressive loss of lung function and, ultimately, the respiratory failure that causes death in more than 95% of patients is a relentless, chronic neutrophilic endobronchitis, usually accompanied by chronic infection with mucoid forms of *Pseudomonas aeruginosa.* Recent studies using bronchoalveolar lavage and analysis of molecules and cells involved in this process have shown the overwhelming importance of a dysregulated acute inflammatory response that causes enormous collateral damage from neutrophil products designed for the intracellular digestion of foreign pathogens. An understanding of the central importance of the frustrated host inflammatory response in causing structural and functional lung damage has led to the hypothesis that the direct suppression of inflammation can, independent of antimicrobial chemotherapy, ameliorate cystic fibrosis lung disease. The Cystic Fibrosis Foundation sponsored a four-year, multicenter, double-blind, placebo-controlled study of the use of alternate-day prednisone in patients with mild lung disease. Although the high-dose arm of 2 mg per kg produced unacceptable side effects, administering the lower-dose arm of 1 mg per kg resulted in sustained improvement in pulmonary function over the entire four-year period in patients colonized with *P. aeruginosa.* Growth suppression after two years was the only major toxic effect. Thus, the treatment of earlier stages of lung disease with 1 mg per kg of prednisone on alternate days for as long as two-year cycles appears to be a promising new therapy. Further studies of the use of inhaled corticosteroids seem warranted to see if toxicity can be further limited while retaining efficacy.

If steroid therapy is effective, can nonsteroidal anti-inflammatory agents also favorably affect earlier stages of cystic fibrosis lung disease without the unwanted steroid side effects? A recently concluded four-year, double-blind, placebo-controlled trial of the use of high-dose ibuprofen showed a similar efficacy—virtually halting progressive lung function deterioration without any important toxic effects. In this study, however, it was clear that each patient needs an individually tailored pharmacokinetic evaluation to achieve a target peak plasma concentration of drug to suppress neutrophil ingress and activation in vivo. Plans are being made to provide a clinically useful pharmacokinetic analytic package to determine proper dosages.

In tandem with approaches to broadly suppress inflammation, efforts have been made to target specific mediators of inflammation, such as neutrophil elastase and other proteases. For this purpose, infused or inhaled antiproteases such as α_1-protease inhibitor (α_1-antitrypsin), recombinant human secretory leukoprotease inhibitor, and various synthetic peptide antiproteases have entered clinical trials. It appears that achieving concentrations of these suppressors sufficient to fully buffer the enormous load of free proteases in cystic fibrosis airways is the principal limiting factor to this approach. Drugs that suppress neutrophil activation, such as orally administered pentoxifylline, show promise.

In concert with inflammatory damage, ingress and activation of neutrophils result in a large burden of dying cells that release structural components into the airways. DNA and actin are two such structural components that are present in high concentrations and result in pronounced increases in viscoelasticity and adhesion tension of airways secretions. The genes for human deoxyribonuclease and gelsolin (the latter being a natural human protein that depolymerizes actin in a manner analogous to deoxyribonuclease's cleavage of DNA strands) have now been cloned, and recent clinical trials of recombinant human deoxyribonuclease (Pulmozyme, Genentech) have shown that, in patients with cystic fibrosis with mild to moderate lung disease, treatment can improve lung function by 5% to 10% for at least two years and reduce the frequency of pulmonary exacerbations requiring intravenous antibiotic therapy by 25% to 33%. Deoxyribonuclease was approved for use in patients with cystic fibrosis in early 1994, and it is safe and effective in patients with severe lung disease (forced vital capacity < 40% of predicted) and can also be used in patients during pulmonary exacerbations. Major questions regarding the future use of Pulmozyme include its role in early disease (children < 6 years or persons with normal or near-normal pulmonary function) and its long-term effect on the course of cystic fibrosis lung disease. Clinical trials of recombinant human gelsolin, which shows potent mucolytic activity and appears to be synergistic with Pulmozyme in vitro, are anticipated in 1995.

There has been recent progress in antimicrobial therapy also. A well-designed, multicenter, double-blind, placebo-controlled trial of inhaled tobramycin recently showed its safety and efficacy. In this trial, however, high doses of drug were used (to ensure sputum concentrations adequate to kill virtually all strains of *P. aeruginosa),* delivered by an ultrasonic nebulizer unlike that currently used by most patients with cystic fibrosis. Recent trials of a new formulation of tobramycin delivered by commonly used jet nebulizers show promising results in achieving target levels in sputum. Further clinical trials leading to the Food and Drug Administration's approval of this new formulation specifically designed for cystic fibrosis therapy are underway. Another strategy, to boost host response to *P aeruginosa* by passively infusing opsonic antibodies to the mucoid capsular polysaccharide, is currently in clinical trials.

Much has been learned about the cellular consequences of the mutations in the *CF* gene that causes the disease. The *CF* gene product, cystic fibrosis transmembrane conductance regulator (CFTR), functions at least in part as a chloride channel. In addition, in a manner not yet elucidated, CFTR acts to regulate sodium transport in respiratory epithelia. These observations have led to investigation of a drug therapy capable of modifying chloride and sodium transport. The sodium channel blocker amiloride, when inhaled, has been shown to have a small but considerable beneficial effect on mucociliary clearance and pulmonary function in patients with cystic fibrosis and is currently being evaluated in clinical trials. In addition, nontoxic triphosphate nucleotides such as uridine triphosphate have been shown to enhance chloride secretion by stimulating alternate non-CFTR channels present in respiratory epithelial cells. Early clinical trials exploring the safety and efficacy of inhaled uridine triphosphate are in progress.

With the discovery of the *CF* gene, the prospect of replacement gene transfer therapy appeared on the horizon. Early clinical trials of in vivo gene therapy are underway at several centers. Much work remains to be done in identifying the proper target cells, refining gene delivery vectors to enhance efficiency of gene transfer to those cells, reducing host inflammatory and immune responses to vector components, and working out therapeutic indices, dose-response ranges, and dosing frequency. It is encouraging and exciting to note that more patients with cystic fibrosis have entered gene therapy trials than patients with all other human diseases combined, indicating the leading role that gene therapy is playing as medicine enters the molecular era of the 21st century.

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Use of Epoetin (Erythropoietin) in the Anemia of Prematurity

HEALTHY full-term infants have a progressive fall in hemoglobin levels during the first several months of life, reaching a nadir of about 100 grams per liter (10 grams per dL) around 10 to 12 weeks of age. This physiologic anemia of infancy is due in part to the infant's rapid growth and expanding blood volume and in part to the decreased survival of erythrocytes. Hemoglobin levels fall earlier and more substantially in premature infants, particularly those born before 32 weeks of gestational age. In this group, the nadir may be as low as 60 grams per liter (6 grams per dL) and reached as early as 4 to 6 weeks of age. Infants with the anemia of prematurity often exhibit clinical signs of hypoxia, such as tachycardia, respiratory distress, and poor growth; this contrasts sharply with full-term infants who are usually asymptomatic.

The anemia of prematurity is a normocytic, normochromic anemia, characterized by low reticulocyte counts and bone marrow erythroid hypoplasia. Decreased erythropoiesis may be partially explained by increased concentrations of hemoglobin A (due to multiple blood transfusions), which decreases the hematopoietic stimulus. Erythropoietin levels in these patients are still 10-fold to 10,000-fold lower than expected for their degree of anemia, however. The most likely explanation for this inadequate erythropoietin response is a delay in the switch from liver to kidney as the primary organ of erythropoietin production. This switch, normally initiated late in the third trimester and completed just after birth, has not yet occurred in premature infants. These infants are unable to respond to hypoxia adequately, because the liver is less sensitive than the kidneys to low oxygen pressures.

Blood transfusions have traditionally been the treatment of choice for the anemia of prematurity, but alternative therapies have been sought because of the risks associated with transfusions. Recombinant human erythropoietin, first cloned in 1977, was shown in early studies to increase erythropoiesis in a dose-dependent manner by increasing the number of maturing erythroblasts, shortening the maturation period of developing erythrocytes, and increasing the release of reticulocytes from the bone marrow.

Early studies of the use of recombinant human erythropoietin (epoetin) in the anemia of prematurity showed an increase in erythropoiesis and a decrease in the need for transfusions when high doses of epoetin were used, along with adequate iron supplementation. Decreased weight gain was observed in the experimental groups of some early studies, but this was not observed when infants receiving epoetin also received high-caloric diets with protein supplementation. Substantial adverse effects were essentially nonexistent.

The promising results of these small early studies prompted a large, multicenter trial, the results of which were recently published. In this study of 241 premature infants, it was found that the administration of 750 U per kg per week of epoetin beta, along with 2 mg of elemental iron per kg per day, significantly reduced the need for transfusions and increased the average hematocrit. Weight gain was decreased in the experimental group, but a high-caloric diet was not used in this study. No adverse effects of epoetin beta were observed, except for a slightly higher incidence of infection. Two possibilities seem most likely to contribute to the higher incidence of infection: the administration of epoetin beta required multiple subcutaneous injections, two of the infants showing induration at the administration site; and treatment with epoetin beta causes an increased use of meager iron stores, which may increase susceptibility to infection. Although this trend in the study was not statistically significant, the observation signifies the need for caution in adopting this therapeutic approach. In other small studies in which infants received 3 to 6 mg of supplemental elemental iron per kg per day, no increased incidence of infection occurred.

Although the increased safety of blood transfusions through the use of single donors and improved viral screening techniques has reduced the risk of transfusion therapy, epoetin is emerging as a possible alternative in the treatment of the anemia of prematurity. Cost analysis has shown little difference between the two approaches. Transfusion therapy costs an average of $1,203 per infant and epoetin beta an average of $1,262. More studies are needed to establish optimal dosing regimens, iron supplementation, and nutritional support for patients receiving epoetin for the anemia of prematurity and to identify which patients are most likely to benefit. Further studies, however, may validate the use of epoetin to prevent or treat the anemia of prematurity.

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Inhaled Nitric Oxide for the Treatment of Persistent Pulmonary Hypertension

PERSISTENT pulmonary hypertension is the most important cause of cardiorespiratory failure and the most common indication for treatment with extracorporeal membrane oxygenation (ECMO) in near-term neonates. In persistent pulmonary hypertension, the resistance to the flow of blood through the lungs is high. This results in hypoxemia caused by large right-to-left shunts through the patent ductus and the foramen ovale. Persistent pulmonary hypertension occurs as a primary condition of neonatal maladaptation or as a secondary condition to other diseases such as hyaline membrane disease, meconium aspiration, infection, and congenital diaphragmatic hernia. That most babies with this disorder also have severe parenchymal lung disease complicates their treatment and requires that therapy be aimed at both components. Babies with persistent pulmonary hypertension may also have varying degrees of perinatal hypoxic ischemic encephalopathy.

Nitric oxide is a recently discovered biologic messenger with many physiologic roles. It dilates blood vessels, allows macrophages to kill bacteria, fungi, and tumor cells, and is a neurotransmitter involved in central nervous system functions such as long-term memory. Nitric oxide is thought to be the final regulator of vascular muscle tone at a cellular level. It plays key roles in the regulation of cerebral and coronary blood flow and in overall vascular homeostasis. In humans, the presence of an endogenous inhibitor of nitric oxide synthesis has been suggested as a mechanism for the hypertension of chronic renal failure. Administered inhibitors of nitric oxide synthesis may have a beneficial effect on the hypotension of septic shock. Nitroso-containing compounds, such as nitroprusside, are thought to act through liberating nitric oxide in tissue.

The therapeutic value of inhaled nitric oxide is being studied in other conditions in which pulmonary hypertension plays a role and beyond the neonatal age group. These conditions include surgical and postoperative management of congenital heart disease, the adult respiratory distress syndrome, and idiopathic pulmonary hypertension.

To date, there is no clinically evaluated, selective pulmonary vasodilator that is free of systemic side effects. Studies using inhaled nitric oxide in animals have shown a reversal of pulmonary vasoconstriction, with no apparent effect on the systemic vascular resistance. In neonates and animals with persistent pulmonary hypertension, inhaled nitric oxide used in concentrations of 20 to 80 parts per million has been reported to rapidly improve preductal oxygen saturation. No studies, however, have shown whether inhaled nitric oxide decreases mortality or the need for ECMO in babies with persistent pulmonary hypertension or if it changes the incidence of chronic lung disease or the duration of a hospital stay.

The bedside set-up for administering inhaled nitric oxide should include primary-grade nitric oxide in nitrogen gas, 800 to 2,000 ppm, certified to contain no greater than 8 ppm of nitrogen dioxide and an electrochemical or chemiluminescence analyzer capable of measuring nitric oxide and nitrogen dioxide levels in parts per million. Currently available analyzers may give erroneous values of nitrogen dioxide in the presence of a high fraction of inspired oxygen or may not readily fit in a ventilator circuit. Other hardware includes single-stage diffusion-free regulators, an appropriate flowmeter, and a scavenging system.

Once it reaches the pulmonary circulation through the lung, inhaled nitric oxide almost instantly binds to reduced hemoglobin, forming nitrosyl-hemoglobin, which is then oxidized to methemoglobin with the production of nitrites and nitrates. Provided methemoglobin levels in the blood remain below 5%, this leads to no clinically important problems. Inhaled nitric oxide does get into platelets and prolongs bleeding time, which has raised the concern that this might lead to an increased risk for neonatal intracranial bleeding. Nitric oxide and its oxidation products (NO_2, NO_x) may also cause direct pulmonary toxicity, particularly to immature lungs. Current occupational safety and health standards consider exposure to 25 ppm for an eight-hour time-weighted average safe. Pulmonary vasodilator concentrations of nitric oxide currently used are in this range, but therapy with nitric oxide will usually involve a 24-hour exposure rather than eight hours.

Most investigators feel that inhaled nitric oxide is still an experimental therapy, but some centers are currently using inhaled nitric oxide for clinical indications, outside of experimental protocols. Theoretically, any center, large or small, could avail itself of the equipment and know-how to administer inhaled nitric oxide at this stage. Undesirable effects of this might include delayed referral of patients needing level III care and exposure of patients to a possibly toxic gas before its indications, contraindications, and side effects have been fully elucidated by randomized controlled trials in progress.

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Dialysis and Renal Transplantation of Infants

OBSTRUCTIVE uropathy, renal dysplasia, and renal cortical necrosis are the most common causes of end-stage renal disease in infants. An interesting occurrence is that asphyxia in the newborn period can damage kidneys out of proportion to brain, leaving an infant with renal cortical necrosis but good potential for intellectual development. Oxalosis and severe congenital nephrotic syndrome are infrequent causes of renal failure.

When infants with severe renal disease fail to grow with conservative management, dialysis may be needed to help an infant grow to a size suitable for transplantation. Dialysis is usually prescribed as a vigorous peritoneal dialysis program, with the infant receiving 12 or more exchanges a day. Besides this dialysis prescription, adequate nutrition must be provided. Infants with renal failure generally have poor appetites, and 90% of them need nasogastric tube feeding or gastrostomy feeding. Daily energy intakes of as much as 140 kcal per kg of body weight may be needed. With such a dialysis and nutrition program, however, growth and development can be well supported and transplantation undertaken if the renal disease does not resolve.

Kidney transplantation is the therapy of choice for infants and children with end-stage renal disease. Transplantation has been accomplished in infants as small as 4.5 kg (10 lb), but is more easily done, with less risk, once the infant has reached 8 to 10 kg (18 to 22 lb). At this size, when the transplantation is done at a center with both a surgeon and nephrologist experienced in caring for infants, the results approach those attained in larger children. Patient survival rates are above 95% at one year and graft survival above 90%. Most donors (70%) used for infants and small children are living-related, usually a parent. Best results are obtained with the use of living donors. Cadaver donors younger than six years are not suitable because of rates of graft thrombosis and technical complications.

The kidney is placed in the peritoneal cavity, with anastomoses of the renal artery and vein end-to-side to the aorta and inferior vena cava. The kidney most often lies on the right side, and the right native kidney may be removed to make room. Both native kidneys are removed only if they are thought to be a risk for infection or the cause of severe hypertension. In the immediate postoperative period, urine output is high, but the adult kidney accommodates to the infant's physiology within days.

Infants and small children usually grow and develop well after transplantation. Most are maintained on triple immunosuppressive therapy consisting of azathioprine, cyclosporine, and low-dose prednisone. Tacrolimus (Prograf, called FK 506 during clinical trials before US Food and Drug Administration [FDA] approval) is similar to cyclosporine in action and has recently been approved by the FDA for use in patients with liver transplants. It may also have a role in kidney transplantation, particularly in patients who do not tolerate cyclosporine or who absorb it erratically. Tacrolimus is absorbed rapidly from an empty stomach. New and better immunosuppressive regimens, with better efficacy and fewer side effects than this triple therapy, are on the horizon. If a transplanted kidney does fail, retransplantation is possible.

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Sedation for Pediatric Procedures

THE increase in the number of diagnostic and therapeutic procedures done on infants and children over the past decade has led to an increased use of sedation for these patients. Imaging studies, bone marrow aspirations, lumbar punctures, dental procedures, cardiac catheterizations, and endoscopies are commonly done with sedation in hospitals and ambulatory clinics. The American Academy of Pediatrics Committee on Drugs and the Joint Commission on Accreditation of Healthcare Organizations have focused attention on the care and comfort of infants and children during these procedures. The promotion of practice guidelines by these organizations is aimed at reducing risk and ensuring quality by reducing variations in practice.

The decisions to perform a procedure and to sedate a patient are independent of one another. Too often physicians ignore nonpharmacologic methods, such as sleep deprivation and natural sleep, cuddling, and distraction, that can be successful and eliminate or reduce the need for sedating drugs. A rational approach requires the answers to a series of questions about the procedure. Is it painful? How long must the patient be sedated? Is immobility necessary? Is this procedure an emergency? The answers, combined with a careful assessment of the patient, allow individual decisions to be made. The assessment includes a medical history and physical examination, looking for a history of apnea, seizures, previous sedations, cardiopulmonary problems, current medication use, or recent illness. The examination may reveal a possible airway problem. There is no doubt that the time and effort involved in this aspect of the sedation process will yield a great return in terms of patient safety and success of the procedure. Thoughtful physicians will then be in a position to assign the level of risk, to choose the appropriate drug, and to ensure patient safety with the most appropriate monitoring and personnel.

The level of sedation achieved when administering sedative drugs ranges from conscious sedation to a level near that of general anesthesia. Recognizing this continuum of sedation and individual patient variability in response to sedating drugs, it is mandatory that patients be monitored and assessed throughout the procedure and recovery. The safety net includes the regular assessment of physiologic variables by personnel trained in basic life support and immediately available emergency equipment and a responsible physician. Protocols are necessary to ensure consistency, but in any situation, vigilant attention to the patient is key.

A recent survey of current practice in which the first three choices for sedation were chloral hydrate, DPT (meperidine hydrochloride [Demerol], promethazine hydrochloride [Phenergan], and chlorpromazine hydrochloride [Thorazine]), and pentobarbital indicates that clinicians use drugs that are familiar to them. Many alternative pharmacologic agents are available that have more desirable properties and fewer side effects than these agents.

Medications available to clinicians fall into several categories. Sedative-hypnotic drugs include barbiturates, benzodiazepines, and major tranquilizers (butyrophenones). Characteristics such as rapidity of onset, duration of effect, and side effects vary widely. For example, barbiturates enhance the perception of pain despite their sedative properties, whereas butyrophenones enhance the effects of analgesics. The choice between these two classes of drugs, therefore, should be influenced by whether or not the procedure planned will be painful to the child.

Opiates—often referred to as narcotics—are primary analgesics with sedative side effects, and all are potent respiratory depressants. Several new synthetic opiates are short-acting and are ideal for brief painful procedures because they do not leave the child depressed for a lengthy period. Local anesthetics are important to use in every case in which the medical procedure involves any degree of pain because the local anesthetic will reduce the required dose of opiates or sedatives, thus increasing the safety to the patient.

Adjuvant medications such as the nonsteroidal anti-inflammatory drugs, particularly the newer parenteral drug ketorolac tromethamine (which is not yet approved for pediatric use), have analgesic effects nearly equal to those of the opiates and are devoid of respiratory depression, thereby reducing the opiate requirement and enhancing safety. General anesthetics, such as nitrous oxide, ketamine hydrochloride, and propofol in subanesthetic doses, can occasionally be used by nonanesthesiologists. We recommend training and experience as a prerequisite to the use of such drugs and adherence to strict protocols to prevent trespass into the realm of general anesthesia by nonanesthesiologists. Each drug, furthermore, has important dose limitations, side effects, and possible complications of which physicians must be aware.

Each institution must develop therapeutic guidelines based on local practice and institutional experience. Departments of anesthesia are increasingly being consulted in the development of protocols and guidelines. This trend is entirely appropriate because new pharmacologic agents are often introduced as anesthetic agents. The administration of sedation will remain most often in the practice of nonanesthesiologists, however. Each practitioner must define the scope of practice based on personal knowledge and skills and seek appropriate consultation for those patients who are beyond that scope.

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MORBIDITY AND MORTALITY WEEKLY REPORT

Serogroup B Meningococcal Disease—Oregon, 1994

IN Oregon, the incidence of meningococcal disease has increased substantially, more than doubling from 2.2 cases per 100,000 persons in 1992 to 4.6 per 100,000 in 1994—the highest incidence in Oregon since 1943. This incidence was almost fivefold higher than recent estimates for the United States during 1989-1991 (approximately one case per 100,000 persons annually).[1] This report describes meningococcal disease surveillance data from 1994 and summarizes epidemiologic and laboratory data on serogroup B meningococcal disease in Oregon during 1987-1994.

During 1994, a total of 143 cases of meningococcal disease was reported to the State Health Division. In 124 cases, *Neisseria meningitidis* was isolated from a normally sterile site (confirmed cases); in four cases, gram-negative diplococci were detected in specimens obtained from a normally sterile site or in persons who had classic symptoms after contact with a confirmed case (presumed cases). Characteristic symptoms (including petechial rash and hypotension) occurred in 14 cases; however, these cases were not culture confirmed (suspected cases). Of 115 isolates for which serogroup was known, 70 (61%) were serogroup B, 40 (35%) were serogroup C, four were serogroup Y, and one was serogroup W-135. When compared with 1992 and 1993, the serogroup-specific incidence in 1994 was higher for both serogroups B and C.

Of the 70 culture-confirmed cases of serogroup B infection, 34 (49%) occurred in females. Seven (10%) cases were fatal; of these, one occurred in a child aged two years, and four deaths occurred in persons aged 55-88 years.

During 1987-1992, 63% (84 of 133) of cases of serogroup B occurred in children aged <5 years; in comparison, in 1994, 27% (19 of 70) occurred in this age group. When compared with 1987-1992, the incidence of reported serogroup B disease in 1994 increased modestly among those aged <5 years (from 6.9 to 8.4), approximately 14-fold among those aged 15-19 years (from 0.4 to 5.4), and approximately fourfold among those aged ≥60 years (from 0.3 to 1.1) (Figure 1).

In 1994, serogroup B cases occurred in 17 of the 36 counties in Oregon; these counties account for 83% of the total population of Oregon. The risk for disease was highest in counties in the Willamette Valley in the northwestern part of the state. Based on investigation of serogroup B cases, six (9%) were linked to other cases. Two co-primary cases (disease in a close contact within 24 hours of disease onset in a primary case) were linked to a single primary case. Four secondary cases (disease in a close contact >24 hours after disease onset in a primary case) were identified; at least two occurred in patients for whom appropriate chemoprophylaxis had been prescribed but who were noncompliant with therapy.

Of the 114 *N. meningitidis* serogroup B strains isolated in Oregon during 1993-1994, a total of 64 (56%) has been characterized at CDC by multilocus enzyme electrophoresis. Of these, 55 (86%) belong to the enzyme type-5 (ET-5) complex, a gloup of genetically related serogroup B meningococcal strains associated with epidemic meningococcal disease in other countries.[2] Twelve of these isolates also have been serotyped, serosubtyped, and immunotyped; all are serotype 4 or 15, serosubtype P1.7,16, and immunotype L3,7,9,8,10.

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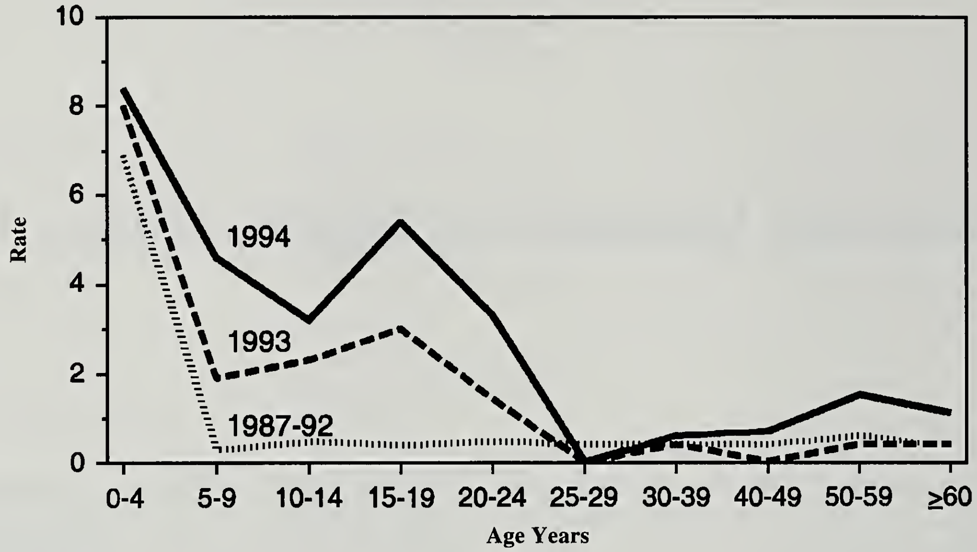
Figure 1.—Incidence rate* of serogroup B meningococcal disease, by age group and year of onset—Oregon, 1987-1994



*Per 100,000 population.

Editorial Note: The recent increased occurrence of serogroup B meningococcal disease in Oregon has been associated with a group of closely related strains belonging to the ET-5 clonal complex. These strains were first identified as the cause of a serogroup B meningococcal epidemic in Norway that began in 1974 and persisted through 1991.[3] After its identification in 1974, serogroup B meningococci belonging to the ET-5 complex subsequently caused epidemics in Europe, Cuba, and South America.[2] Endemic meningococcal disease typically is caused by a heterogeneous mix of strains. In comparison, the predominance of closely related strains, or clones, in Oregon is characteristic of epidemic disease, as is the disproportionate increase in age-specific incidence among young adults. The latter pattern has been suggested as a reliable predictor of the transition from endemic to epidemic meningococcal disease.[4,5]

Although serogroup C meningococcal outbreaks have occurred with increasing frequency nationwide since 1991,[6] Oregon is the only state to report substantially increased rates of serogroup B meningococcal disease. While Washington state had only a slight increase in the overall rate of meningococcal disease in 1994, rates of serogroup B meningococcal disease in Clark County, Washington (1994 population: 280,800) (across the Columbia River from metropolitan Portland, Oregon), have increased almost fivefold (from 1.5 per 100,000 in 1987 to 7.1 per 100,000 in 1994). These increasing rates underscore the need for determining the serogroup of all isolates to assist in assessing trends in the occurrence of meningococcal disease and serogroup distribution of invasive *N. meningitidis* in other states.

The primary means for the control and prevention of serogroup B meningococcal disease is chemoprophylaxis of close contacts. The meningococcal vaccine licensed in the United States provides protection against serogroups A, C, Y, and W-135 but does not provide protection against serogroup B meningococcal disease. Meningococcal capsular polysaccharides determine serogroup and are used in purified form to produce the A/C/Y/W-135 vaccine. Unlike the other major meningococcal serogroups, however, serogroup B capsular polysaccharide is poorly immunogenic in humans. Alternate approaches to the development of a serogroup B meningococcal vaccine have focused on use of outer-membrane proteins from specific epidemic serogroup B meningococcal strains.

Three outer-membrane protein-based serogroup B meningococcal vaccines employing two-dose regimens have been effective among older children and young adults in large clinical trials outside the United States;[7-9] estimated efficacies ranged from 57% to 83%. The only vaccine available commercially is not licensed for use in the United States but has been used in some South American countries to control serogroup B meningococcal epidemics. In Sao Paulo, Brazil, approximately 2.4 million children aged three months to six years were vaccinated during 1989 and 1990, and the vaccine was estimated to be 74% effective in children aged 4-6 years.[10] Efforts to initiate studies in the United States to evaluate available vaccines under an investigational new drug application are in progress.

Oregon and three other states (California, Connecticut, and Minnesota) are participating in a cooperative agreement with CDC to study emerging infectious diseases. One focus of this program in Oregon is disease caused by *N. meningitidis* serogroup B; a study of potentially modifiable risk factors for meningococcal disease is under way.

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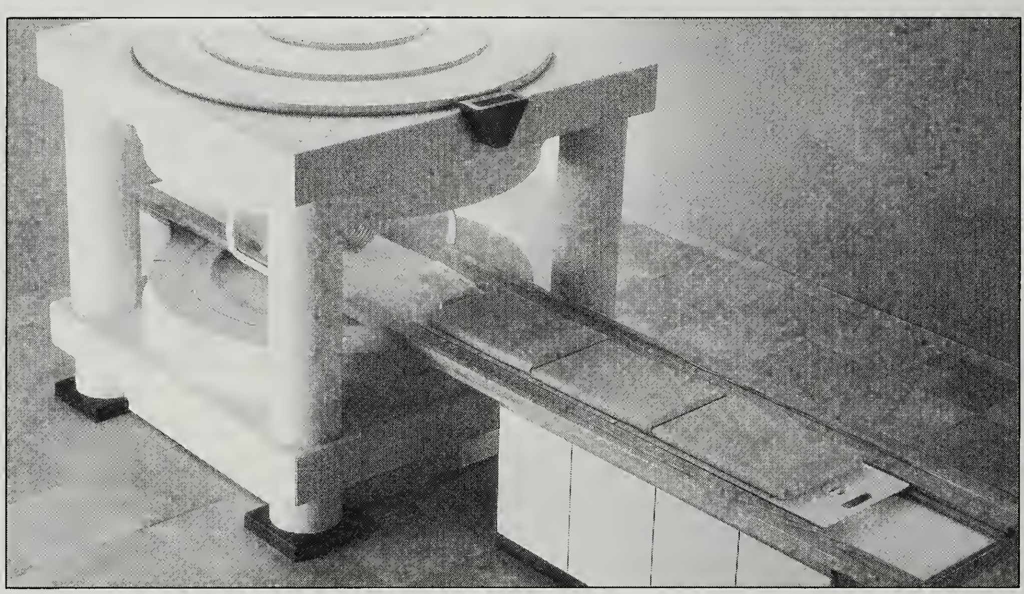

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THE MEDICAL LETTER

Drugs that Cause Photosensitivity

As the weather becomes warmer, physicians may see more photosensitivity reactions due to systemic or topical drugs, perfumes, cosmetics or sunscreens (JE Allen, *Clin Pharm* 1993; 12:580; TS Potter and K Hashimoto, *Compr Ther* 1994; 20:414). Even brief exposure to sunlight in warm or cold weather can cause intense cutaneous reactions in patients with drug-induced photosensitivity, and some patients may continue to be sensitive to sunlight long after stopping use of the offending agent.

The table that follows lists some drugs and other agents that have been reported to cause photosensitivity reactions. Those marked with an asterisk are more frequent causes of reactions. Phototoxic drugs used for therapeutic purposes such as the psoralens trioxsalen *(Trisoralen)* and methoxsalen *(Oxsoralen)*, used for vitiligo and psoriasis, and coal tar *(Zetar;* and others), used for psoriasis, are not included.

Some Agents That May Cause Photosensitivity Reactions

***Reactions occur more frequently**

ANTICANCER DRUGS
Dacarbazine *(DTIC-Dome)*
Fluorouracil *(Fluoroplex,* and others)
Flutamide *(Eulexin)*
Methotrexate *(Folex,* and others)
Vinblastine *(Velban,* and others)

ANTIDEPRESSANTS
Amitriptyline (*Elavil*, and others)
Amoxapine *(Asendin,* and others)
Clomipramine *(Anafranil)*
Desipramine *(Norpramin,* and others)
Doxepin *(Adapin,* and others)
Imipramine *(Tofranil,* and others)
Maprotiline *(Ludiomil,* and others)
Nortriptyline *(Aventyl,* and others)
Phenelzine *(Nardil)*
Protriptyline *(Vivactil)*
Trazodone (*Desyrel*, and others)
Trimipramine *(Surmontil)*

ANTIHISTAMINES
Cyproheptadine *(Periactin,* and others)
Diphenhydramine *(Benadryl,* and others)

ANTIHYPERTENSIVES
Captopril (*Capoten)*
Diltiazem *(Cardizem,* and others)
Methyldopa (*Aldomet,* and others)
Minoxidil *(Loniten,* and others)
Nifedipine *(Procardia,* and others)

ANTIMICROBIALS
Ciprofloxacin *(Cipro)*
Clofazimine *(Lamprene)*
Dapsone (generic)
*Demeclocycline (*Declomycin,* and others)
*Doxycycline *(Vibramycin,* and others)
Enoxacin *(Penetrex)*
Flucytosine *(Ancobon)*
Griseofulvin *(Fulvicin-U/F,* and others)
*Lomefloxacin *(Maxaquin)*
Minocycline *(Minocin,* and others)
*Nalidixic acid *(NegGram,* and others)
Norfloxacin *(Noroxin)*
Ofloxacin *(Floxin)*
Oxytetracycline *(Terramycin)*
Pyrazinamide (generic)
Sulfonamides
Tetracycline *(Achromycin,* and others)
Trimethoprim *(Proloprim,* and others)

Reprinted from *The Medical Letter,* Vol. 37, 14 April 1995.

ANTIPARASITIC DRUGS
Chloroquine *(Aralen,* and others)
Quinine (many manufacturers)
Thiabendazole *(Mintezol)*

ANTIPSYCHOTIC DRUGS
*Chlorpromazine *(Thorazine,* and others)
Fluphenazine *(Permitil,* and others)
Haloperidol *(Haldol,* and others)
Perphenazine *(Trilafon,* and others)
*Prochlorperazine *(Compazine,* and others)
Thioridazine *(Mellaril,* and others)
Thiothixene *(Navane,* and others)
Trifluoperazine *(Stelazine,* and others)
Triflupromazine *(Vesprin)*

DIURETICS
Acetazolamide *(Diamox,* and others)
Amiloride *(Midamor,* and others)
Bendroflumethiazide *(Naturetin,* and others)
Benzthiazide *(Exna)*
*Chlorothiazide *(Diuril,* and others)
*Furosemide *(Lasix,* and others)
*Hydrochlorothiazide *(HydroDIURIL,* and others)
Hydroflumethiazide *(Diucardin, Saluron)*
Methyclothiazide *(Aquatensen,* and others)
Metolazone *(Mykrox, Zaroxolyn)*
Polythiazide *(Renese)*
Triamterene *(Dyrenium)*
Trichlormethiazide *(Metahydrin,* and others)

HYPOGLYCEMICS
Acetohexamide *(Dymelor)*
Chlorpropamide *(Diabinese,* and others)
Glipizide *(Glucotrol,* and others)
Glyburide *(DiaBeta,* and others)
Tolazamide *(Tolinase,* and others)
*Tolbutamide *(Orinase,* and others)

NONSTEROIDAL ANTI-INFLAMMATORY DRUGS
Diflunisal *(Dolobid)*
Ibuprofen *(Motrin,* and others)
Indomethacin *(Indocin,* and others)
Ketoprofen *(Orudis,* and others)
Nabumetone *(Relafen)*
Naproxen *(Naprosyn,* and others)
Phenylbutazone *(Butazolidin,* and others)
*Piroxicam *(Feldene*, and others)
Sulindac *(Clinoril,* and others)

SUNSCREENS
*Aminobenzoic acid (PABA- 405 Solar Cream)
Avobenzone *(Photoplex; Shade UVA Guard)*
*Benzophenones *(Bain de Soleil; Solbar,* and others)
Cinnamates *(Bull Frog; Coppertone,* and others)
Homosalate *(Coppertone; Tropical Blend,* and others)
Menthyl anthranilate *(Hawaiian Tropic;* Neutrogena, and others)
*PABA esters *(Tropical Blend; Presun*, and others)

OTHERS
Alprazolam (*Xanax,* and others)
Amantadine (*Symmetrel,* and others)
*Amiodarone *(Cordarone)*
Benzocaine (many manufacturers)
Benzoyl peroxide (*Oxy 10*, and others)
*Bergamot oil, oils of citron, lavender, lime, sandalwood, cedar (used in many perfumes and cosmetics; also topical exposure to citrus rind oils)
Carbamazepine (*Tegretol*, and others)
Chlordiazepoxide *(Librium,* and others)
Clofibrate *(Atromid-S,* and others)
Contraceptives, oral
Desoximetasone *(Topicort,* and others)
Disopyramide *(Norpace,* and others)
Etretinate *(Tegison)*
Fluorescein *(Fluorescite,* and others)
Gold Salts *(Myochrysine,* and others)
Hexachlorophene *(pHisoHex,* and others)
Isotretinoin (*Accutane*)
*6-methylcoumarin (used in perfumes, shaving lotions and sunscreens)
*Musk ambrette (used in perfumes)
*Promethazine *(Phenergan,* and others)
Quinidine sulfate and gluconate (many manufacturers)
Trimeprazine *(Temaril)*
Tretinoin (Retin-A)

Local Consortium Offers Lessons on Health Reform

DAVID D'ERAMO

THROUGHOUT the past year, America witnessed unprecedented confrontation as health-care players squared off against one another in the national arena of reform.

Tort reform battled the trial lawyers. Cost controls confronted pharmaceutical research. Managed care was pitted against a national review board. Harry and Louise squabbled with Bill and Hillary—and on and on.

When the smoke cleared in October, no one was left standing and the big losers were the ones who could least afford it—those millions of Americans who live in fear of losing their medical coverage or who have no access to regular health care.

During the same year, as chairman of the Capital Area Health Consortium, I was privileged to witness a model of collaboration that might well serve as an inspiration to our national leaders as they begin to put together the pieces of sensible health-care reform. As reformers try to figure out what went wrong at the national level and what needs to be done, they just might want to look closely at what happened when a number of Connecticut hospitals decided to work together. The Capital Area Health Consortium was formed more than 20 years ago to tackle and solve problems that affect the health and well-being of people in the region.

> *People clearly want positive action that would improve the health care system, but there can be no movement without a spirit of collaboration.*

The initial spark and early leadership for the consortium was provided by T. Stewart Hamilton, a well-known physician and administrator who realized that the best solutions to the most complex problems emerge through collaboration and leadership. His vision has endured, and the membership includes the area's most respected health-care institutions: Hartford Hospital, the Hospital for Special Care, the Institute of Living, Manchester Memorial Hospital, Mount Sinai Hospital, New Britain General Hospital, Newington Children's Hospital, Saint Francis Hospital and Medical Center, John Dempsey Hospital / University of Connecticut Health Center and the Department of Veterans' Affairs Medical Center in Newington.

Driven by Dr. Hamilton's conviction that collaboration is the key, the group's accomplishments have contributed to our region's reputation for quality health care and yielded tangible results.

The consortium supported:

A Regional Approach to Trauma

Emergency medical services have always been a priority for the Consortium. Soon after the Consortium was formed, hospital leaders recognized that transportation and communication are important factors in saving lives. Consequently, they developed a plan and provided start-up funding for C-MED, which remains the backbone of the region's emergency and disaster communications system.

Giving At-Risk Babies a Fighting Chance

Concern over the high risk of pregnancy and preterm

Reprinted from the *Hartford Courant*, 4 April 1995, p. A11, submitted by David D'Eramo. Last month Mr. D'Eramo completed a two-year term as chairman of the Capital Area Health Care Consortium. He is president and chief executive officer of Saint Francis Hospital and Medical Center and Mount Sinai Hospital.

births also has been a longstanding concern for the Consortium. Chiefs of obstetrics and gynecology of member hospitals joined to support an initiative known as the Hartford Action Plan on Infant Health. They sought to improve services for women at risk of delivering preterm babies whose birth weight would be low and whose chances for survival would be compromised. Several member hospitals are cooperating to continue improving access to prenatal services for women throughout the region.

Just as significant, Consortium members are interested in the work of the CHILD Council and the Children's Fund, which were established as a result of the deliberations over construction of a new children's hospital.

They also have sponsored a regional survey of resources to determine the capability of neonatal intensive-care services.

A Commitment to Better Training

The Consortium's membership also has a tradition of involvement in education by sponsoring health-care symposiums, as well as evaluating and supporting better ways of training health-care professionals. Because the mechanism for funding graduate medical education and training is being reviewed at the national level, it is important to consider the potential impact on our region and to evaluate possible alternatives.

Recognition for Community Service

The commitment to collaboration extends to the communities served by member hospitals. A year ago, the Consortium began sponsoring a community-service award that goes to an organization or agency supported by volunteers from a member hospital. The first awards went to a soup kitchen in New Britain and a homeless shelter in Hartford. This year's focus will be on voluntarism in an educational setting that promotes school success among urban youth.

The Consortium's accomplishments and aspirations go far beyond these examples. Committees are looking at the institutional use of antibiotics, ways to stem and control certain infectious diseases, and improvements in geriatric services.

As the debate at the national level continues, America's frustration grows.

People clearly want positive action that would improve the health-care system, but there can be no movement without a spirit of collaboration.

When we consider all that has been accomplished in a small state such as Connecticut by working together regionally, maybe there's hope that the national health-care reformers will notice one aspect of the system that's working and follow suit.

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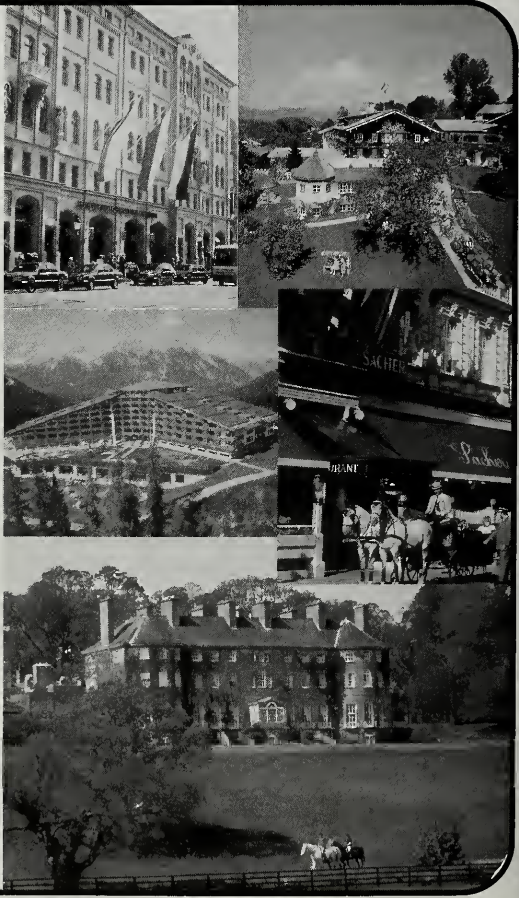

When Do Physician Recruitment Arrangements Affect a Hospital's Tax-Exempt Status?—Revisited

LINDA M. WILDER-CURTIS, J.D., AND ELLIOTT B. POLLACK, L.L.B.

ABSTRACT—Physician recruitment incentives by hospitals continue to be popular in today's competitive health-care environment. A physician in private practice may also seek a hospital's assistance in recruiting a new colleague. In *Conn Med* 1989; 10:605-6, the authors discussed the prohibitions against private benefit and private inurement and their effect on recruitment packages. This article highlights new developments and Medicare/Medicaid fraud and abuse issues which may affect a tax-exempt hospital's status and, therefore, will dictate many of the terms of these packages.

TO recruit physicians, a tax-exempt hospital may use financial incentives such as guaranteed minimum salaries, relocation allowances, reduced rent or free office space, below market loans, malpractice insurance, equity ownership in medical office buildings, and one-time recruitment bonuses. If successful, these inducements produce benefits for the hospital, the physician, and the community. However, an important but often overlooked issue is the possible effect of such strategies on the hospital's tax-exempt status.[1]

To retain its tax-exempt status under Section 501 (c) (3) of the Internal Revenue Code (IRC)[2] a hospital:

- must be organized and operated exclusively for charitable purposes;
- must be operated to serve public purposes rather than private interests (prohibition against *private benefit*);[3]
- may not engage in more than insubstantial amounts of lobbying; and
- may not allow any part of its net earnings to benefit any private shareholder or individual (prohibition against *private inurement*).[4]

By attracting needed physicians, a hospital satisfies its charitable obligations to promote the health of the community. However, if the recruitment arrangement violates the IRC prohibitions on private benefit or private inurement, the tax-exempt status of the hospital will be jeopardized.

The Prohibition Against Private Benefit

A hospital will not qualify for tax-exempt status unless it serves the public interest and does not serve a private interest other than "incidentally." Where there is no cost or loss to the hospital, it is generally sufficient to show that a particular business transaction serves a public interest and furthers the exempt purpose. However, where there is a net cost or a loss to the hospital, the private benefit must be shown to be *both* qualitatively and quantitatively incidental.

The benefit will be *qualitatively* incidental if it cannot be achieved without necessarily benefiting certain private individuals, eg, the incentive was the *only* way to recruit the physician. The benefit will be *quantitatively* incidental if the value of the direct and indirect benefit to the hospital equals or exceeds the cost of the benefits received by the physician.

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The Prohibition Against Private Inurement

Previously, only those individuals who controlled a hospital, eg, "insiders" such as directors, trustees, or officers, were considered to have a sufficient "private interest" in the activities of the hospital to be subject to this prohibition. However, in General Counsel Memorandum (GCM) 39498, the Internal Revenue Service (IRS) took a very different position.

Although declining to rule conclusively on the issue in advance, the IRS noted that recruitment agreements *could* result in the physician's private interests being served other than incidentally, thus violating both the prohibitions against private benefit and private inurement. The resulting violation could provide a basis for revocation of the hospital's tax exemption.[5]

Hospitals responded by developing "community need" arguments to protect their recruitment arrangements and to support their incentives—documenting shortages in physician services, gaps of coverage in their service areas, and commuting distances to other hospitals.

Hermann Hospital Closing Agreement

Hermann Hospital had provided incentives including signing bonuses, income guarantees, office personnel salary support, free office space, equipment loans, loan guarantees, and malpractice insurance, many of which had not been approved by its governing body, to both newly recruited physicians as well as physicians already in its service area. Many of these benefits did not require repayment or the performance of specified duties in exchange for the benefits received.

Although the hospital did not lose its exemption, it was required to pay over $1,000,000 in fines and penalties. The hospital was also required to make a public announcement in the local newspaper about the settlement, including publishing the terms of the closing agreement in their entirety. Further, the hospital agreed to comply with very detailed "Physician Recruiting Guidelines" that were made part of the closing agreement.

These guidelines provide that incentives offered to a recruited physician will *only* be permissible if "there is a demonstrable community need for the physician" in the hospital's service area. Need may be shown by such factors as population-to-physician ratio, demand for a particular medical service, designation of the area as a Health Professional Shortage Area, documented lack of physicians serving indigents, or Medicaid patients within the hospital's service area.

The Hermann guidelines address permissible recruitment incentives such as loans, lines of credit, loan guarantees, payment of actual moving and relocation expenses, and interview travel costs. They place reasonableness restrictions on income guarantees, a two-year limit, no "off-agreement" incentives, and the stipulation that periodic income advances are to be structured as loans. Finally, the guidelines also provide that subsidies for office space rentals, overhead, and equipment are permissible only if no comparable incentive is provided, such as an income guarantee or a forgiven loan. The guidelines forbid any retention incentives to physicians currently on staff. (Hermann Hospital Closing Agreement, released 14 October 1994.)[6]

Although this closing agreement applies only to the facts and circumstances of that particular case, the IRS views the agreement as providing guidance to exempt hospitals (as well as other tax-exempt entities) on the practical application of IRS policy on recruitment and retention arrangements.

Further, the IRS and the Department of Health and Human Services (DHHS) are coordinating efforts and have launched a two-pronged regulatory assault on physician recruitment, retention, or incentive arrangements which offer unseemly financial rewards, restrict how or where a physician practices medicine, or are patient-volume sensitive.

The Medicare Anti-kickback Statute and Initial Safe-harbor Regulations

The Medicare fraud and abuse "Anti-kickback Statute"[7] provides civil and criminal penalties for any transaction or arrangement in which a person "knowingly or willfully solicits or receives remuneration" directly or indirectly for making a referral for a person covered by Medicare.

On 29 July 1991, the Office of the Inspector General of DHHS (OIG) identified several "safe harbors" which describe commercial transactions and arrangements, such as space rental, equipment rental, or personal service contracts, that would not be subject to criminal or administrative prosecution under the Anti-kickback Statute. These safe-harbor regulations give health-care providers assurances that if they comply in good faith they will not be prosecuted.[8] However, in practice these harbors protect very few traditional hospital/physician relationships and do not include a safe harbor for physician recruitment.

Shortly after these safe harbors were announced, the IRS issued GCM 39862 which revoked three earlier rulings that had each approved a hospital's sale of revenue streams to a hospital/physician joint venture.[9] Prior to this, tax-exempt hospitals routinely had argued that physician incentives were necessary to enhance the hospital's competitive position. GCM 39862 expanded the scope of private inurement to all facets of hospital/physician relationships, not just joint ventures, and changed the private/public benefit analysis focus from benefits flowing indirectly through the hospital to benefits flowing directly to the community.

Most importantly, this GCM established the connection between the Anti-kickback Statute and a hospital's federal tax exemption.

The IRS Audit Guidelines for Tax-Exempt Hospitals

In 1992 the IRS revised its tax-exempt hospital audit guidelines to focus on joint ventures, the community benefit standard, and private inurement. It also directed IRS agents to enforce the Anti-kickback Statute by looking for certain "red flags." Under those guidelines, IRS auditors must:

> review compensation of officers, directors, and physicians to determine if excessive, ... be alert to compensation arrangements, such as open-ended employment contracts or compensation based upon a percentage of a hospital's profits, ... be alert to arrangements employed by hospitals to recruit and/or retain physicians, including such things as: *Physicians beinq charged no rent or below market rent for space in hospital-owned office buildinqs; hospitals providing physicians with practice guarantees; hospitals providinq financial assistance to physicians for home purchases and/or the purchase of office equipment; and, outright cash payments* by hospitals to physicians to secure or retain their services. (Section 333 (4) (h) of Internal Revenue Manual 7 (1069), Exempt Organization Guidelines)

The OIG Special Fraud Alert

The OIG has also turned its attention to a variety of recruitment and retention incentive programs which a hospital may utilize to directly or indirectly compensate physicians (or other providers) for referring patients to the hospital. Such arrangements can violate the Anti-kickback Statute if they constitute remuneration offered to induce, or in payment for, referral of Medicare/Medicaid patients. The OIG has determined that such arrangements can interfere with the physician's judgment regarding care and inflate costs by the overuse of inappropriate services which results in the delivery of inappropriate care to Medicare beneficiaries or Medicaid recipients. Referral patterns, therefore, could be based upon financial incentives to the physician rather than the most appropriate care for the patient.

In a Special Fraud Alert issued on 6 May 1992, the OIG identified several "suspect" factors in physician incentive packages which are *suggestive* of potential illegal activity and which may be subject to criminal prosecution under the Anti-kickback Statute if *one* of the purposes is to influence the physician's medical decision as to where to refer a patient.

These "suspect" financial incentives, which include many traditional recruitment incentives, include but are not limited to:

- Payment of any sort of incentive by the hospital each time a physician refers a patient to the hospital.
- Free or significantly discounted office space or equipment (usually in facilities located close to the hospital).
- Free or significantly discounted billing, nursing, or other staff services.
- Free training for a physician's office staff in areas such as management, CPT coding, and laboratory techniques.
- Guarantees which provide that, if the physician's income fails to reach a predetermined level, the hospital will supplement his income up to a certain amount.
- Low-interest, interest-free, or loans that may be "forgiven" if a physician refers patients to the hospital.
- Payment for a physician's continuing education courses.
- Coverage on the hospital's group health insurance plans for an inappropriately low cost to the physician.
- Payment for services (which may include consultations at the hospital) which require few, if any, substantive duties by the physician, or payment for the services in excess of the fair market value of services rendered.

Each of these arrangements must be viewed in connection with the intent of the Anti-kickback Statute. If the hospital provides an incentive to the physician with the intent of inducing referrals, the OIG considers that to be a criminal violation. However, the statute is not violated if the hospital's intent is to satisfy a documented community need and there is *no* expectation of referrals.

Proposed Safe Harbor for Rural Physician Recruitment

On 21 September 1993, DHHS proposed several additional safe harbors, including one for physician recruitment by hospitals and other entities located in rural areas. However, this physician recruitment safe harbor will be limited to: (1) a relocating physician who is starting a new practice in a new geographic region or (2) a new physician completing an internship or residency who is joining an existing practice.

Conclusion

All of this signals that both the IRS and DHHS will be closely scrutinizing recruitment and retention incentive arrangements. The IRS will be evaluating the "community benefit" in such arrangements on a case-by-case basis to detect private inurement or benefit to the physician. Similarly, DHHS will be reviewing such arrangements to detect violations of the Anti-kickback Statute. Though hospitals can be penalized for violating IRS and DHHS recruitment guidelines, physicians may also incur civil and criminal penalties for accepting illegal payments.

REFERENCES

1. This article does not address other issues such as corporate practice of medicine, fee-splitting, and professional medical malpractice which may also be raised by recruitment activities.
2. IRC §501(c)(3) (1986). Any reference to the IRC is to the Internal Revenue Code of 1986, as amended.
3. Treas. Regulation §1.501 (c) (3)-l (d) (l) (ii).
4. Treas. Regulations §1.501 (c) (3)-l (c) (2) and §1.501 (a)-l (c).
5. General Counsel Memorandum 39498 (24 April 1986). In an unpublished Private Letter Ruling issued to a hospital in April 1990, the IRS revisited its position on physician income guarantee arrangements and ruled that forgiveness of indebtedness as part of a recruitment tool did not constitute private inurement under certain circumstances. It is important to note in that case that the hospital satisfied the community benefit standard by demonstrating a serious decline in patient volume in its existing cancer treatment departments which threatened the entire program.
6. *See also*, IRS Technical Advice Memorandum ("TAM") LTR9451001, issued 14 April 1994 which revoked a non-operating acute-care hospital's exempt status. The IRS claimed, in part, that the entity purchased physician practices for a price far in excess of fair market value.
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8. There is no safe-harbor protection for hospital purchases of medical practices. The only safe-harbor protection is for sales from practitioner to practitioner, *and* the selling practitioner must not be in a professional position to make referrals to, or generate business for, the purchasing practitioner after one year. 42 CFR §1001.952 (e).
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Yale Project Initiated to Interrupt or Stop Spread of TB Prevention—A Major Goal

A major project to study the prevalence, pattern and transmission of tuberculosis, or TB, among New Haven residents has been launched with federal support to the Yale University School of Medicine.

"The three-year project will promote awareness of TB and describe what TB looks like in diverse populations, with particular attention on high-risk drug users," states Peter Selwyn, M.D., M.P.H., who directs the study. Dr. Selwyn, associate professor of medicine and public health at the Yale School of Medicine and an attending physician at Yale-New Haven Hospital, serves as associate director of Yale AIDS Program.

"Through this multidisciplinary project, we are combing medical and public health approaches to complement and extend the past work of the New Haven Coalition to Eliminate Tuberculosis, thus enabling us to build on the collaborations that have already been developed," Dr. Selwyn adds. The coalition was established in 1992.

This new study, administered through the Yale AIDS Program and funded by a $1.6 million National Institute on Drug Abuse grant, is a collaborative effort which involves more than 20 health professionals and other experts from Yale-New Haven Hospital, the Yale Schools of Medicine, of Public Health, and of Management, the Hill Health Center, the APT Foundation, the New Haven Health Department of Veterans Affairs Medical Center in West Haven, the Hartford Dispensary, and the State Departments of Public Health and Addiction Services and of Corrections.

Tuberculosis, a chronic bacterial infection spread through the air, usually affects people's lungs. Nodular lesions form in lung tissue, affecting breathing. And recently this infectious disease has reemerged as a serious public health problem.

Most people infected with the bacteria that causes TB never develop it. However, in people with weakened immune systems, especially those infected with the human immunodeficiency virus (HIV), TB organisms may overcome the body's defenses, multiply, and cause active disease.

In Connecticut, the incidence of TB is higher than the national average of 10 per 100,000 per year. TB occurs in approximately 15 per 100,000 people a year, and 20% of all these TB cases occur in people infected with HIV, state health statistics show.

"HIV infection, drug use, and poverty, when combined, may paint a scenario for TB," Dr. Selwyn points out. "Because of New Haven's population and geographic size, we hope to be able to develop a model program that can be used to interrupt or stop the spread of TB in high-risk communities elsewhere in the United States.

"Our efforts will be concentrated at a community level. We have all of the pieces in place to understand, intervene and potentially prevent TB, and many of the collaborating agencies have already done important work in this area," Dr. Selwyn emphasizes. "We hope to look at ways to effectively prevent a TB epidemic," he explains. "By being more systematic in our attempts to identify people with TB infection, we hope we can prevent its spread."

William P. Quinn, M.P.H., director of health for the New Haven Health Department, states, "The key components of this project which are of particular interest to the department and me are the education and prevention aspects—essential pieces to the public health puzzle. I am optimistic and delighted that the comprehensive approach initiated by the New Haven Coalition to Eliminate Tuberculosis will be continued and extended by this project. New Haven is very fortunate to have the expertise of Dr. Selwyn. The success of this project will benefit the public health of this community, as well as throughout the country," he adds.

People who are identified as being at risk for getting TB, by having a positive TB skin test, can be given medications to reduce the risk of getting active TB and spreading it to other people.

The Yale AIDS expert adds, "We plan to conduct laboratory work to determine the different strains of TB that may exist in the community and also to employ DNA fingerprinting techniques to tell whether two people are infected by the same or a different germ. We then want to study evidence for the transmission of the germ in our local geographic area."

Safe Sex?

RUSTY WRIGHT, B.S.

STARLIGHT dances off the sparkling water as the waves gently lap the shore. A cool breeze brushes across your face as you stroll hand in hand along the moonlit beach.

The party was getting crowded and the two of you decided to take a walk on the deserted waterfront. You've only known each other a short while but things seem so right. You laugh together and sense a longing to know this person in a deeper way.

You pause and tenderly gaze into each other's eyes, blood rushing throughout your body as your heart beats faster. Soon you are in each other's arms kissing softly at first, then fervently. You tug at each other's clothes and both kneel to the sand. The condom comes on. You join in passionate lovemaking, then relax, hearing only the gentle waves and each other's breathing, grateful that you are comfortable in mutual care and that all is safe.

Or is it?

Was the condom you used enough to keep you safe? Aside from the emotional and psychological implications of your romantic encounter, realize that the condom is not a 100% guarantee of safety against AIDS for the same reason the condom is not a 100% guarantee of safety against pregnancy. There's always the possibility of human or mechanical error. Condoms can slip and break. They also can leak. Even the experts aren't certain condoms can guarantee against sexual transmission of the HIV virus.

Theresa Crenshaw, M.D., has been a member of the President's Commission on HIV. She is past president of the American Association of Sex Educators, Counselors, and Therapists[1] and once asked this question to 500 marriage and family therapists in Chicago: "How many of you recommend condoms for AIDS protection?"

A majority of the hands went up. Then she asked how many in the room would have sex with an AIDS-infected partner using a condom. Not one hand went up.

These were marriage and family therapists, the "experts" who advise others. Dr. Crenshaw admonished them that, "It is irresponsible to give students, clients, patients advice that you would not live by yourself because they may die by it."[2]

What does this tell you about the confidence experts have in condoms to protect persons against AIDS?

Not too long ago herpes caught the public's attention. Now, of course, the focus is on AIDS. As with herpes, it is very difficult to be absolutely certain that your partner in premarital sex does not have AIDS and there is no known cure. But, of course, there's a big difference between herpes and AIDS: herpes will make you sick; AIDS will kill you.

This article was sent to *Connecticut Medicine* for consideration by LeRoy H. Wardner, M.D., West Hartford.—*Ed.*

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RUSTY WRIGHT holds B.S. and M.A. degrees in psychology and religion from Duke University and the International School of Theology, respectively. A member of Lambda Chi Alpha Fraternity and author of four books, he has lectured to thousands of students and professors at universities on six continents. He has also frequently appeared as a guest on TV talk shows in cities around the globe. A regular alumni participant in General Assemblies, Rusty has frequently spoken at chapter houses, conclaves, and other fraternity/sorority functions across North America. Special thanks to Richard Smith, John Harris, and Josh McDowell for valuable research provided for this project. Copyright © 1994 Rusty Wright. Printed by permission.

Assessing the Risk

After I had made these remarks at a university in California, one young man asked me to explain what I meant when I said that condoms aren't safe. Consider this:

Condoms have an 85% (annual) success rate in protecting against pregnancy. That's 15% a failure rate.[3] But remember, a women can get pregnant only about six days per month.[4] HIV can infect a person 31 days per month.

Latex rubber, from which latex gloves and condoms are made, has tiny, naturally occurring voids or capillaries measuring on the order of one micron in diameter. Pores or holes five microns in diameter have been detected in cross sections of latex gloves.[5] (A micron is one thousandth of a millimeter.) Latex condoms will generally block the human sperm, which is much larger than the HIV virus. (A human sperm is about 60 microns long and three to five microns in diameter at the head.[6])

But the HIV virus is only 0.1 micron in diameter.[7] A five- micron hole is 50 times larger than the HIV virus. A one-micron hole is 10 times larger. The virus can easily fit through. It's kind of like running a football play with no defense on the field to stop you or shooting a soccer ball into an open goal. The hole is huge!

In other words, many of the tiny pores in the latex condom are large enough to pass the HIV virus (that causes AIDS) in its fluid medium.

One study focused on married couples in which one partner was HIV positive. When couples used condoms for protection, after one and one-half years, 17% of the healthy partners had become infected.[8] That's about one in six, the same odds as Russian roulette.

One U.S. Food and Drug Administration (FDA) study tested condoms in the laboratory for leakage of HIV-sized particles. Almost 33% leaked.[9] One in three.

One analysis of 11 studies on condom effectiveness found that condoms had a 31% estimated failure rate in protecting against HIV transmission. In other words, as the report stated, "These results indicate that exposed condom users will be about a third as likely to become infected as exposed individuals practicing "unprotected" sex.... The public at large may not understand the difference between "condoms may reduce risk of" and "condoms will prevent" HIV transmission. It is a disservice to encourage the belief that condoms will prevent sexual transmission of HIV. Condoms will not eliminate risk of sexual transmission and, in fact, may only lower risk somewhat."[10]

Burlington County, New Jersey, banned condom distribution at its own county AIDS counseling center. Officials feared the legal liabilities if people contracted AIDS or died after using the condoms the county distributed. They were afraid the county would be held legally responsible for the deaths.[11]

Over Easy Please

Latex condoms are sensitive to heat, cold, light, and pressure. The FDA recommends they be stored in "a cool, dry place, out of direct sunlight, perhaps in a drawer or closet."[12] Yet they are often shipped in metal truck trailers without climate control. In winter the trailers are like freezers. In summer they're like ovens. Some have reached 185°F (85°C) inside. A worker once fried eggs in a skillet next to the condoms, using the heat that had accumulated inside the trailer.[13]

Are you thinking of entrusting you life to this little piece of rubber?

Is the condom safe? Is it safer? Safer than what?

Look at it this way: If you decide to drive the wrong way down a divided highway, is it safer if you use a seat belt?[14] You wouldn't call the process "safe." To call it "safer" completely misses the point. It's still a very risky—and a very foolish—thing to do.

Remember that a national study found that condoms have a 15% failure rate with pregnancy. Perhaps you have flown in airplanes. Suppose only 15 crashes occurred for every 100 plane flights. Would you say airline travel was safe" Safer?[15] Would you still fly?

AIDS expert Dr. Redfield of the Walter Reed Hospital put it like this at an AIDS briefing in Washington, DC: If my teenage son realizes it's foolish to drink a fifth of bourbon before he drives to the party, do I tell him to go ahead and drink a six pack of beer first, instead?[16]

According to Dr. Redfield, when you're considering AIDS, "Condoms aren't safe; they're dangerous."[17]

The Test

You might say, "We've both been tested for AIDS. Neither of us has it."

The time span between HIV infection and detection of HIV antibodies has been found to be anywhere from three to six months, sometimes longer.[18] In rare cases it can even take years for signs of the virus to appear.[19] Dr. Redfield says that after he was exposed to HIV in his work, he waited 14 months before having sex with his wife.[20]

Suppose you meet someone who says, "I had an HIV test a year ago; it was negative. I haven't had sex for a year. I just had another test; it was negative. I'm safe." You see the test results in writing. Is it safe to sleep with that person?

We all know how hormones can influence honesty. It comes down to this: Are they telling the truth about not being sexually active in the interim? Is there even a chance that person might twist the truth even slightly in order to get into bed with you? Even with the tests, it all boils down to trust. That's why I say, "It's very difficult to be absolutely certain that your partner in premarital sex does not have AIDS."

"Condom sense" is very, very risky. Common sense says, "If you want to be safe, wait."

The Total You

There are many other benefits to waiting (or to stopping until marriage, if you're a sexually active single). By "waiting," I mean reserving sex for marriage.

Sex involves your total personality—body, mind, and spirit. Besides being physically risky, premarital sex can hurt you emotionally and relationally. While you are single, sex can breed insecurity ("Am I the only one they've slept with? Have there been, or will there be, others?"). It can generate performance fears that can dampen sexual response. (If you fear even slightly that your acceptance by your partner hinges on your sexual performance, that fear can hamper your performance.) It can cloud the issue, confusing you into mistaking sexually charged sensations for genuine love.

After you marry, you might wonder, "If they slept with me before we married, how do I know that they won't sleep with someone else now that we are married?" (Marital faithfulness in the age of AIDS is, of course, important both emotionally and physically.) When disagreements crop up with your mate, will you be tempted to ask yourself, "Did we just marry on a wave of passion?" Don't forget flashbacks, those mental images of previous sexual encounters that have a nasty way of creeping back into your mind during arousal. Who wants to be thinking of previous sex partners while making love with their spouse? Worse, who wants their spouse to be thinking of previous sex partners?

Waiting until marriage can help you both have the confidence, security, trust, and self respect that a solid, intimate relationship needs. "I really like what you said about waiting," said a recently married young woman after a lecture at Sydney University in Australia. "My fiance and I had to make the decision and we decided to wait." (Each had been sexually active in other previous relationships.) "With all the other tensions, decisions, and stress of engagement, sex would have been just another worry. Waiting 'till our marriage before we had sex was the best decision we ever made."[21]

Why Is It Hard to Wait?

Apart from the obvious physical power of one's sex drive, there are other equally powerful emotional factors that can make it difficult to wait. A longing to be close to someone or a yearning to express love can generate intense desires for physical intimacy. Many singles today want to wait but lack the inner strength or self-esteem. They want to be loved—as we all do—and may fear losing love if they postpone sex. They are frustrated when unable to control their sexual drives or when relationships prove unfulfilling.

Often sex brings an emptiness rather than the wholeness people seek through it. As one TV producer told me, "Frankly, I think the sexual revolution has backfired in our faces. It's degrading to be treated like a piece of meat." The previous night her lover had justified his decision to sleep around by telling her, "There's plenty of me for everyone." What I suspect he meant was, "There's plenty of everyone for me." She felt betrayed and alone.

I explained to her and to her TV audience that sexuality also involves the spiritual. One wise spiritual teacher understood our loneliness and longings for love. He recognized human emotional needs for esteem, acceptance, and wholeness and offered a plan to meet them. His plan has helped people to become whole "new creatures,"[22] that is, "brand new person(s) inside."[23] He taught that we can be accepted just as we are, even with our faults.[24] We can enjoy the self-esteem that comes from knowing who we are and that our lives can count for something significant.[25] He promised unconditional love to all who ask.[26] Once we know we're loved and accepted, we can have greater security to be vulnerable in relationships and new inner strength to make wise choices for safe living.[27]

This teacher said, "You shall know the truth, and the truth shall make you free."[28] "My peace I give to you," He explained. "Do not let your hearts be troubled and do not be afraid."[29] Millions attest to the safety and security He can provide in relationships. His name, of course, is Jesus of Nazareth. I placed my faith in Him personally my freshman year at Duke, Two Lambda Chis influenced me in that direction. Though I was skeptical at first, it "has made all the difference," as Robert Frost would say.

Sex and spirituality are, of course, quite controversial topics. I realize that our International Fraternity contains a wide spectrum of beliefs on these issues. I offer these perspectives not to preach but to stimulate healthy thinking.

Diversity was one of the things that attracted me to our chapter at Duke. Politically, philosophically, and spiritually we ran the gamut. There were liberals, conservatives, Christians, Jews, atheists, and agnostics. We tried to respect one another and learn from each other even when we differed on issues like these. That is the spirit in which I offer these remarks; may I encourage you to consider them in the same way.

To summarize, the only truly safe sex is the lovemaking that occurs in a faithful monogamous relationship where both partners are HIV negative. Condoms may reduce the risk of HIV transmission somewhat, but they can't guarantee prevention. Please, don't entrust your life to something as risky as a condom.

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Ethical Issues in Managed Care

Statement of Principles

In June 1994 the AMAs Council on Ethical and Judicial Affairs issued recommendations addressing "Ethical Issues in Managed Care." The essence of these recommendations, which were adopted by the AMA House of Delegates, follow.

1. The duty of patient advocacy is a fundamental element of the physician-patient relationship that should not be altered by the system of health care delivery in which physicians practice. Physicians must continue to place the interests of their patients first.
2. When managed care plans restrict the care that physicians may provide, the following principles should be followed.
   a. Any broad allocation guidelines that restrict care and choices beyond the normal cost/benefit judgments physicians routinely make should be established at a policy making level so that individual physicians are not asked to engage in ad hoc bedside rationing.
   b. Physicians must advocate for any care they believe will materially benefit their patients.
   c. Physicians should be given an active role in allocation processes and should advocate for guidelines that are sensitive to differences among patients. Managed care plans should create structures similar to hospital medical staffs that allow physicians to have meaningful, ongoing input into the plan's development of allocation guidelines.
   d. Adequate appellate mechanisms for both patients and physicians should be in place to address disputes regarding medically necessary care.
   e. Managed care plans must adhere to the requirement of informed consent, assuring patients full disclosure of material information, including limitations or restriction on the benefits package.
   f. Physicians should continue to promote full disclosure of treatment options to patients, even if the managed care plan does not cover certain options.
   g. Physicians should only participate in plans that encourage or require care that meets or exceeds minimum professional standards.
3. Financial incentives to physicians are permissible only if they promote the cost-effective delivery of health care and not the withholding of medically necessary care. Financial incentives should be based on quality of care, fully disclosed to patients and calculated according to the performance of a sizable group of physicians rather than on an individual basis.
4. Patients have an individual responsibility to be aware of the benefits and limitations of their health care coverage.

In addition to the recommendations described above, AMA policy supports principles which affirm the physician's professional role and stature. Among them are:

- Physicians should receive notice and an opportunity to respond before any adverse actions are taken against them.
- Physicians should not be subject to unilateral amendment of contracts.
- Physicians should receive actuarial and other information necessary to access managed care plan performance.
- Physicians are entitled to return of withholds unless the withholds are required to maintain plan solvency.

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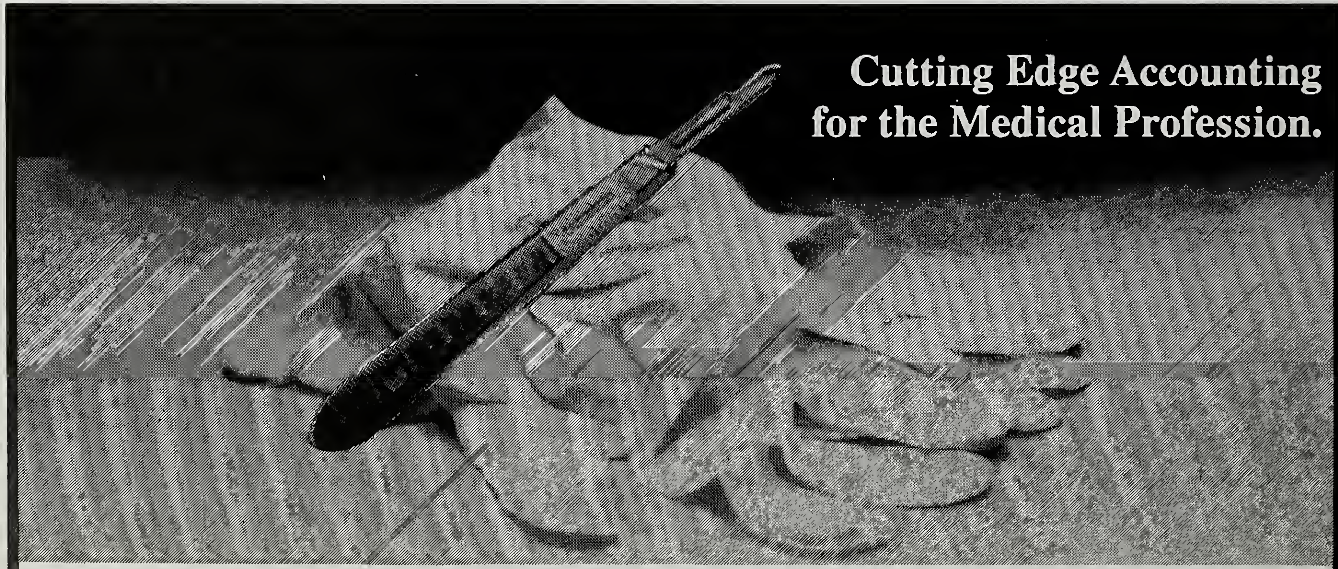

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The New Building—Start to Finish

JAMES DOUGLAS GOLD, M.D., *Bridgeport*

Last month many of our members visited the renovated headquarters of the Connecticut State Medical Society. By all accounts the open house was a success and members seemed as pleased with the handsome and efficient offices and meeting rooms on St. Ronan Street as are those of us who work here. The renovations took 17 months to complete. In the October 1949 issue of *The Connecticut State Medical Journal* is an account, with photographs, of this building shortly after completion in in the summer of 1949. We have reprinted it here. Readers should note that the plans were put out for bid in January 1949. The E & F Construction Company of Bridgeport was awarded the contract and promised completion by 15 July of that year!—Ed.

The Author. *Chairman, Trustees of Building Fund*

At the annual meeting of the House of Delegates of the State Society held in May, 1943, Dr. Creighton Barker, secretary of the Society, in his annual report recommended that the Society build a permanent office building and that there be appointed a committee of five members of the Society labeled "Trustees of the Building Fund." This building would provide space for the secretary's office, editorial and Journal office, with rooms which could be used for the medical examining board, woman's auxiliary, cancer fund, cancer committee, etc., all of which are closely allied with the State Medical Society.

This resolution was brought before the House of Delegates and approved unanimously. The five member Board of Trustees was appointed by the Council of the State Society. The original Board was composed of Drs. Sullivan of New London, Leak of Middletown, George M. Smith of New Haven, Burlingame of Hartford, and Gold of Bridgeport as chairman.

The Board of Trustees immediately proceeded with a great deal of interest, feeling that it was a project that should be carried out as quickly as possible for the need of office space for the Society was urgent.

The first decision the Trustees had to make was where the building should be located. After polling the Society by mail, it was definitely pointed out that New Haven would be the most convenient and medically centered place in the State, easy of access by rail or automobile. That decision was brought before the House of Delegates and they voted to accept New Haven as the location of the State Society office building.

Our next move was the fund raising campaign. We went before the Council and told them that $150,000 should be raised and the conclusion of the Trustees was that each member of the Society should be solicited by letter, with a card enclosed for him to sign stating the amount that he would be willing to pledge, three years being allowed for him to complete the pledge.

You all are aware of our efforts to collect $150,000 from the members of the Society, by letters, pleading letters, pictures, personal solicitation, and reports of progress. By such methods, in five years we had $75,000.

Then after searching for a proper location for the building, as the years 1944 and 1945 came along, several pieces of property were inspected which were thought to be suitable, but the expense was exorbitant. We then looked

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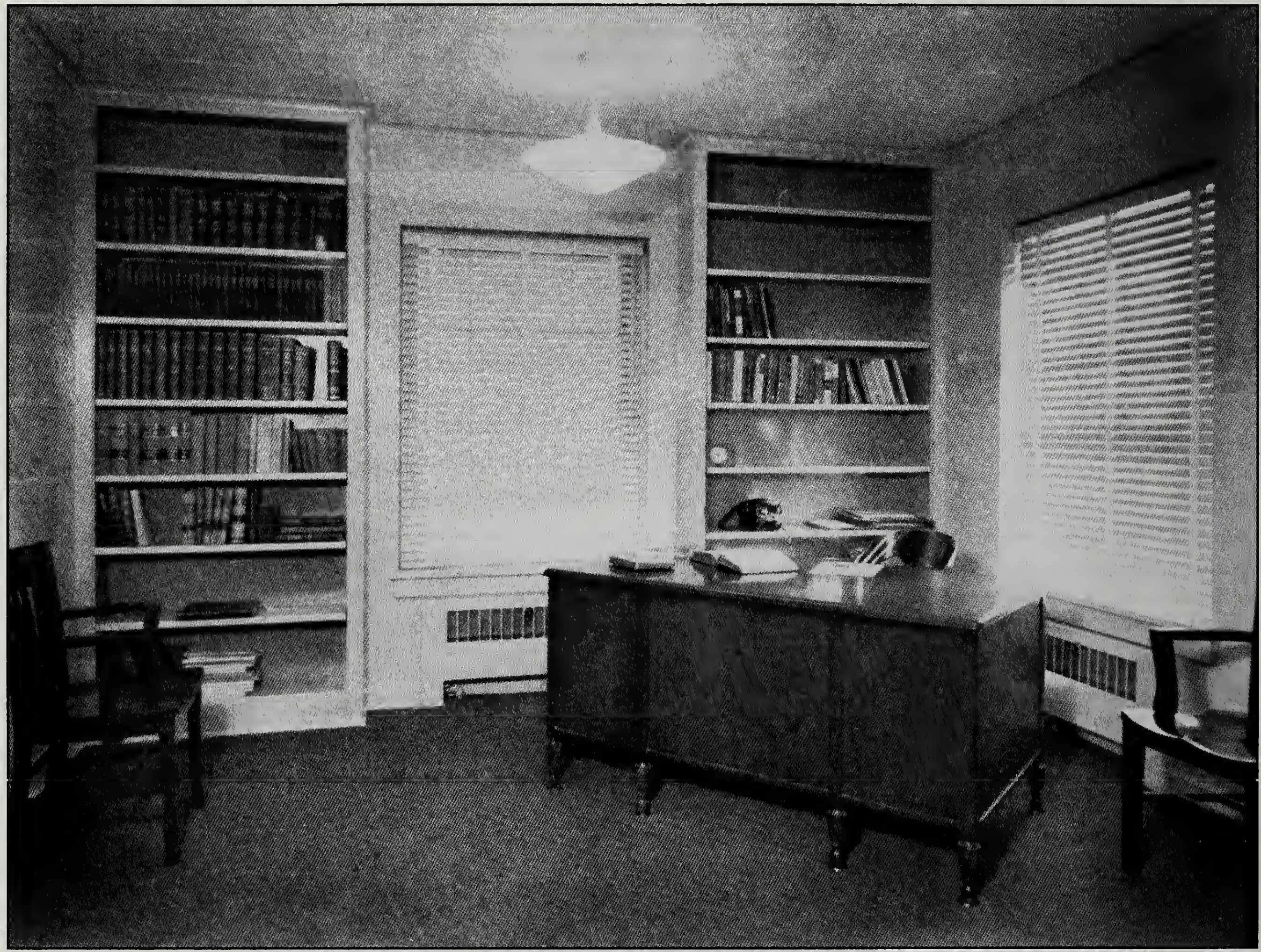


Office of the Executive Secretary

for houses that might be converted, but each time the Board came to the conclusion that they did not want an old house converted into an office building.

Time went on. We could not decide upon a location for a building site, nor could we decide upon a building. Finally the site at the corner of Edwards and St. Ronan Streets was chosen. The Trustees recommended to the Council that the building lot be purchased for $12,000, and in 1946 the deed was received and the location of the State Society office building definitely settled.

Plans were sought from the architect for a building suitable for that location. Estimates were received, but they were far beyond our $75,000 limit. This necessitated new plans.

In January 1949 the plans had been so completed they were put out for bids for construction. Six construction. companies made their offers, prices ranging from $58,000 to $66,000. These bids were presented to the Council and the Trustees were authorized to draw up a contract for the lowest reliable builder. After due consideration and consultation, the E & F Construction Company of Bridgeport was given the job. In their contract they agreed to have the building ready by July 15, 1949. After the contract was let the construction moved along very rapidly, and by the time this letter is received the building will be complete and occupied.

It may have appeared to many of the members that the construction of an office building, the raising of the funds, and the choosing of a location, all would be a very simple proposition. When we consider that the membership of the Society is in the neighborhood of 2,500, a moderate contribution from each member would produce the proper fund. At first, after the notices were sent out from the State office and the results came in, everything seemed to be as we had anticipated, but after a few months, the response was very meager. Another attempt was made to stimulate those who had failed to sign the cards, urging their contributions, until the fund grew to the amount of about $75,000. We had paid $12,000 for the land, paid for the architect, paid for the title search, so that our funds were reduced to about $60,000.

The Work Room (from left to right, Mary Rielly, Josephine Lindquist, and Pauline Russell).

The Trustees then went to the Council and told them about our problem. Since $75,000 at least should be available, we asked the State Society to take from their general fund enough money to meet the $15,000 which was needed to complete the $75,000. The Council agreed to that proposal, with the understanding that we should continue to solicit money and as it accumulated we should return the $15,000 to the treasury. Under these circumstances the building was finished with adequate space for everything that we had anticipated, but still 50 per cent of the members, I repeat, 50 per cent of the members have not contributed after repeated personal solicitations.

In the entrance hallway there is a bronze plaque with inscribed names memorializing past outstanding members of the Society. These memorials were given by relatives and friends of the physicians.

The building is now finished. It is yours. It faces St. Ronan Street at the corner of Edwards Street, landscaped on the front and on each side. In the rear is a large parking space, graded and hard surfaced.

The Trustees have been enthusiastic and faithful in carrying out your wishes, aided by the indefatigable cooperation of Dr. Barker and the office personnel.

Visit your new building, inspect it thoroughly, and realize anew the great need it fills and that "under the inspiration of our chosen leaders its functioning will be a material force which will have its greatest reflection in public service."

The Physician as Poet

Hospice

We have seen Death
We are the harbingers of Death.
Yet we bring calm when fear prevails,
Relief when pain blocks Living before Dying.
We see Death come peacefully
    to one, who in the fullness of years
    welcomes him with a half smile.
We see him hover and wait
    until a loved one comes
    or a task is finally done.
We see him spurned by those who cry
    "He is not here for me"
We see glimpses now and then,
    but the answer will come to us all
    if we but wait.

Stewart P. Seigle, M.D. (Dec. 93)
Osprey, Florida
(retired)

50 Years Ago
From *The Connecticut State Medical Journal*
May 1945

Editorial

Compulsory Health Insurance*

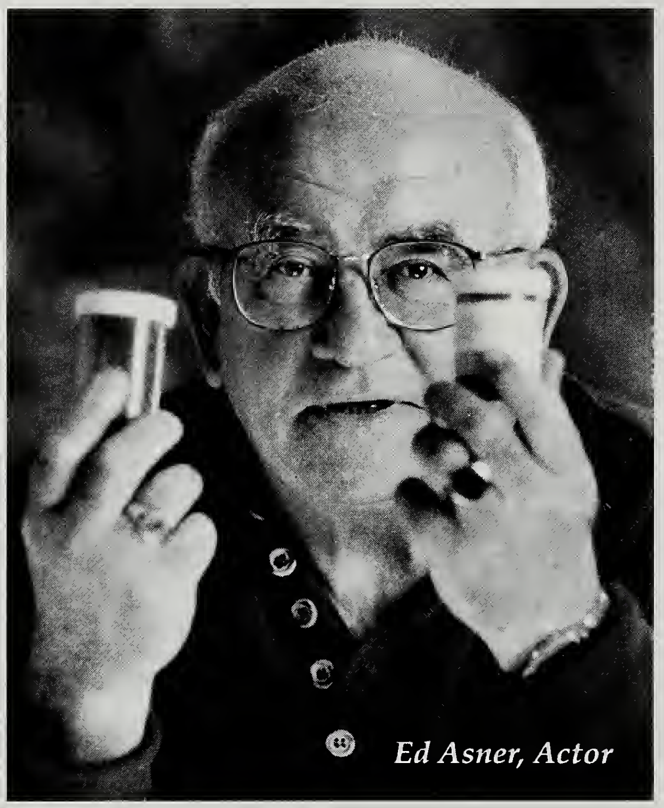
There appeared during the present session of our State legislature an unusual number of bills relating to public health and welfare. One of these bills, H601, provides for a statewide system of a compulsory health insurance. It is important for us to consider the thought which supports such legislation, for in many ways it represents thinking different from that which we have thought to be traditional in the social structure of this country. That our form of democracy, often spoken of as The American Way, may be difficult of exact definition is to be granted, but that most Americans have certain ideas about it is also true. One characteristic that has typified our society since its very beginnings on this continent has been the spirit-of individual freedom. Indeed, historians tell us that this ability to stand on one's own feet was a dominant character of the Angles or Engles, even before their conquest of the British Isles. It long has been our pride that in America an individual by his own initiative could attain that recognition which his talents warranted with greater facility and sureness than elsewhere in this world. Amused as we are by the heroes of Horatio Alger, we know deep down that often they are not too overdrawn. Americans speak, not without pride, of the self-made man and it must be agreed that our system has produced leaders who have made us a nation great in the eyes of the world.

In considering any legislation aimed at changes which appear radical and which may affect those things which are basic in our social makeup, the duty of our law makers is to view not only immediate objectives but to consider what the effects may be upon those things which are inherently good in that structure. In any consideration of compulsory health insurance it would be wise if those who are proposing and supporting such measures would seek to know the advantages offered by those forms of health insurance in which the word compulsory has no application. They should realize that, as physicians and as citizens, our profession is not only concerned with preserving the individual's free choice of physician but also with his free right to choose voluntarily that form of insurance against the hazards of illness which will suit best his particular need. To this end not only has the medical profession in this country cooperated in full extent in voluntary health insurance plans, but in many states it has set up within itself the operation of non profit plans to meet the growing need. Medicine takes the position that under such insurance development not only can it continue to protect its own freedom of action, which over the centuries has been the basic factor in its great development, but also that such a system will foster in the minds of those whom Medicine serves a healthy desire to maintain the same individual freedom. A great American, William James, philosopher and physician, in speaking of his friend, the learned Thomas Davidson, once wrote, "The memory of Davidson will always strengthen my faith in personal freedom and its spontaneities, and make me less unqualifiedly respectful than ever of Civilization, with its herding and branding, licensing and degree giving, authorizing and appointing, and in general regulating and administering by system the lives of human beings."

Reprinted from the *Connecticut State Medical Journal*, May 1945.

*Probably authored by Stanley B. Weld, M.D.—Ed.

Attention: Physicians



Ed Asner, Actor

Have your patients' medicines had a check-up?

Many of your patients take several different medicines every day. Separately each one works well. But if they take two or more different medicines in combination without checking with you to be sure they work safely together, they can sometimes be harmful...even dangerous.

The next time you prescribe a medicine, ask your patients:

"What other prescription and nonprescription medicines are you taking?"

YES! Please send me free information to use when talking with my patients about their multiple medicine use.

Name

Address

City State Zipcode

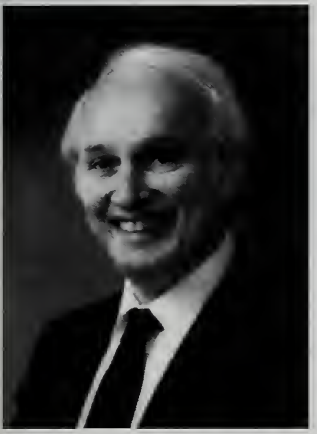
Mail to:

NCPIE
666 Eleventh Street, NW
Suite 810
Washington, DC 20001

OR FAX:
(202)638-0773

A public service message from the National Council on Patient Information and Education (NCPIE) and the U.S. Administration on Aging

Parting Comments



In his parting address to the nation, President Eisenhower warned us to be wary of the military-industrial complex. Since that time, we have seen the emergence of mega-business movements that engulfed smaller independent chattel industries. Witness the demise of the small family farms of the 1950s and '60s. The entire food supply of the nation was once controlled by proud, independent farmers; farmers so independent that they found themselves unable to organize effectively to compete with the deep pockets of agribusiness. Now the ever-shrinking number of independents have to struggle just to barely maintain what they have. Mega-business interests have since discovered the enormous cash flow and the potential cash cow to be milked in the delivery of health care. Witness now those same interests that brought us the mergers and acquisitions of the 1970s and the savings and loan scandals of the 1980s are now positioning themselves to bring us the health care of the 1990s and into the next century. While I see no current evidence of it, I find it hard to believe that this enormous cash cow has also eluded the attention of the organized crime syndicates and I wouldn't be surprised to see a scandal emerge in the not-too-distant future.

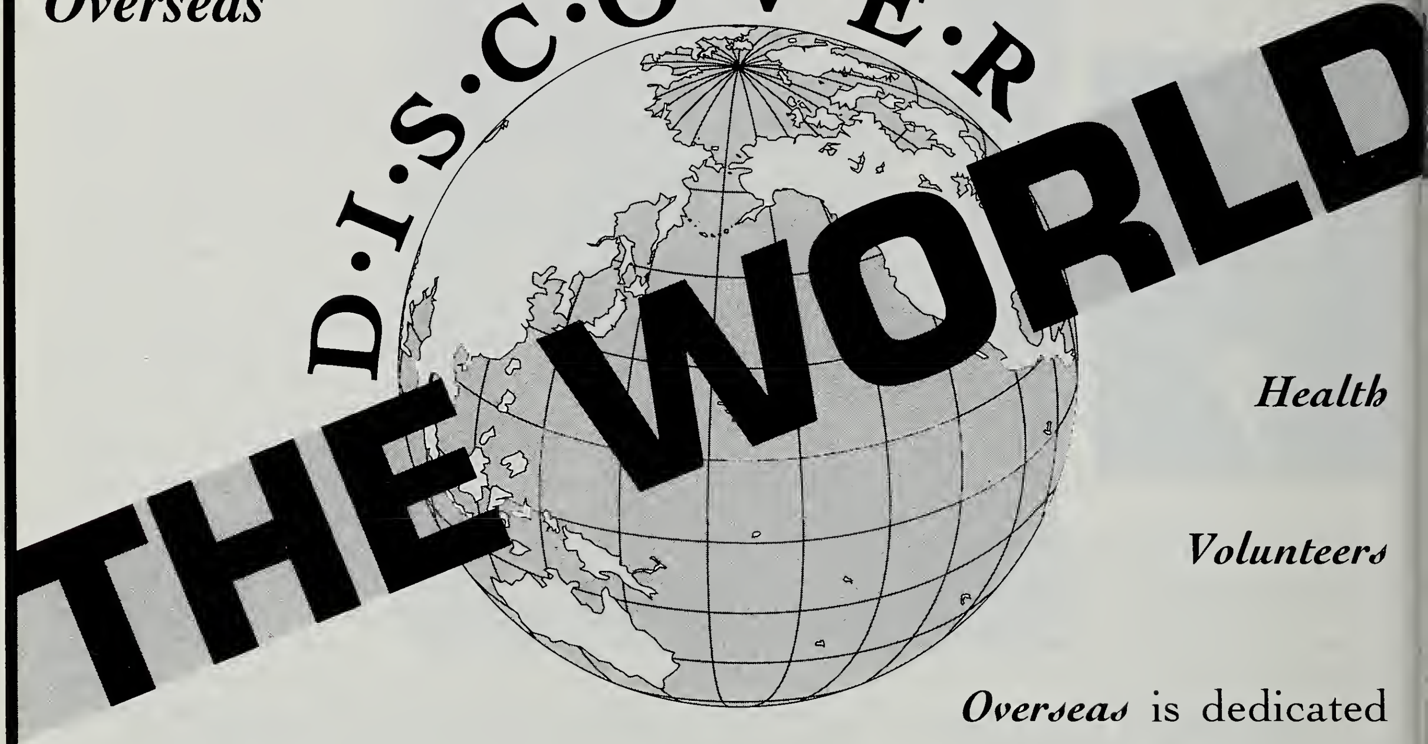
The recent Charlotte Remaniss, M.D., series (copies are available from the *Connecticut Medicine* office) was aimed at presenting a "ghost of Christmas future" look at our future if we follow the path of other temperamentally individualistic, independent groups—history will be doomed to repeat itself. We currently find ourselves in a weird sociological climate, in a system which trains the best physicians with the best technology in the best facilities in the world, paradoxically pushing us to see fewer patients, perform fewer procedures, spend less time getting to know each of our patients, and demonstrate how we will need fewer physicians—not that our patients will need fewer physicians—rather greater profits will drop to the bottom lines of the balance sheets of the megahealth plans. Is the Remaniss series simply Orwellian fantasy? I reread my President's Pages of only the past year and I find myself shocked by the change we've seen in so short a time.

My message, nonetheless, is one of hope, not one of despair. In my travels this past year as your president, I've had the opportunity to meet and talk with colleagues, political leaders, patient-advocacy groups, the media, and, generally, the movers and shakers who make things happen across our state, our region, and nationally. I assure you in the strongest terms that you cannot fathom from the media how those who are political leaders—almost all of them—and our patients—almost all of them—have the most respect for your opinions and advice about what is needed in reform of the health-care system. Our patients and the public at large, would much prefer to have you making the decisions that shape how their care will be delivered. You have only to make the effort to open your mouths and speak from personal experience and your views will be generally respected, especially if they are thoughtful. It completely amazes me how all of us were so willing to sacrifice so heavily of our personal time and our financial resources to reach this cherished calling and this cherished profession—yet we leave it to so few to protect and preserve it for ourselves and those who will follow us. We take so seriously our individual responsibility to our patients, but what of our individual responsibility to their destiny and ours?

I swear that you have it in your hands seriously to influence the future in the most constructive fashion, but I also swear to you that the pace of change is fast, the time is short to begin to get involved, and the window of opportunity is closing. Don't let foolish pride or laziness and exhaustion lead us to repeat the historical mistakes of the others who have been gobbled up by megabusiness. Start by contributing to COMPAC if you haven't already done so. Take the time to call and write your elected leaders when we ask you to do so. Don't leave it to others. Get involved. Collar those of us whom you've elected to lead, make your views known, and ask what you can do to help extend our influence. I've seen what our concerted action can do and has done during this past year and it's awesome! Thank you for the opportunity of serving you. I plan to continue to do so in the years ahead and I hope you'll join me.

Theodore Zanker, M.D.
President

Health
Volunteers
Overseas



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REFLECTIONS ON MEDICINE

The Atomic Nucleus: Symbol of Our Century

ROBERT U. MASSEY, M.D.

WHEN classes were over at Roosevelt Elementary School in Detroit, I walked to the high school next door, to my father's office just off the physics lab. He taught physics at Central High and was head of the science department. Late in the afternoon after the students had left he often would ask me to help him set up the next day's experiments. Sometimes it was little cars on inclined planes, or hand-cranked generators, or Leyden jars and electrostatic machines. Most marvelous of all was the X-ray tube and the hand-held box with the fluorescent screen at one end. When the tube was turned on and you held your hand against the screen while peering into the other end of the black box, you could see the bones of your fingers and palm. I guess neither of us realized that this might be dangerous because I got to do it more than once. We were simply repeating with not much better equipment what Wilhelm Konrad Röntgen had stumbled upon 35 years before in his laboratory at Würzburg.

In a way, 1895 was a preview of the new century. The medical applications of Röntgen's discovery of this "new kind of rays," which, because he was uncertain of their nature, he called X-rays, was quickly recognized and the astonishing technology was broadcast around the world with amazing speed. Six months after Röntgen's December 28th announcement in Würzburg, William Osler suggested using fluoroscopy to diagnose gall stones. Within three years Walter B. Cannon at Harvard was observing gastric motility using bismuth paste as a contrast medium. The use of X-rays to help in the reduction of fractures gave rise to vigorous, sometimes acrimonious debate at meetings of the Hartford County Medical Association in the late1890s, with oldtimers insisting that these shadow pictures were misleading and unnecessary. Althought the early cathode-ray tubes were weak, bones and metallic foreign bodies were easy to see, and the ability to localize the latter was of incomparable value in surgery. The effects of X-rays on tissues, especially skin and lymphatic tissue, were recognized early, and dermatologists were using these mysterious rays for treatment of psoriasis, lupus, hypertrichosis, and eczema before the turn of the century.

Röntgen won the Nobel Prize in physics in 1901, but already his 1895 discovery had started a revolution in physics. A few months later, in 1896, Henri Becquerel obtained a similar weak photographic effect from uranium potassium sulfate; these rays apparently were emitted spontaneously, unlike the X-rays whose production required "cathode rays" to collide with molecules of gas. Two years later Pierre and Marie Curie's paper announcing the discovery of radium was read by Becquerel to the *Académie des Sciences*. The Curies' work would bridge the gap between medicine, then just becoming a science, and physics, the real basic science. Mme. Curie, although none of her research involved X-rays, lectured on the subject at the Sorbonne, and in August 1914, helped design and raise funds for a "radiological car." Eve Curie in her biography of her mother described it and showed a photograph of Mme. Curie at the wheel:

> ... an ordinary automobile in which she put a Roentgen apparatus and a dynamo which, driven by the motor of the car, furnished the necessary current, The complete mobile post circulated from hospital to hospital from August 1914 onward. It was the only one to take care of the examination of the wounded evacuated toward Paris during the Battle of the Marne.

I cannot recall the author of our textbook in high school physics, but I do remember the final chapter in which he reflected on the future of physics. He wrote of the force that bound the protons and neutrons in the atomic nucleus together, observing that there was energy enough in a teaspoon of ordinary matter to drive the Queen Mary across the Atlantic and back. Our teacher asked the class to think about the horrors of a bomb that could use this energy.

A little over six years later when I was a senior in medical school I returned home on the warm evening of 16 July 1945, to see two-inch headlines in *The Detroit News* announcing the explosion at Trinity Site in Alamagordo, New Mexico. One hundred years and then 50 years ago: here were the two faces of technology that Francis Bacon wrote we must always expect.

After the first came the second bomb, the one at Hiroshima on the 6th of August. From Los Alamos Prof. George Kistiakowsky remarked, "I am sure that on doomsday in the last millisecond the last man on earth will see what we have just seen."

ROBERT U. MASSEY, M.D., Professor Emeritus, Division of Humanistic Studies, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington.

CSMS Milestones

1792-1995

1792	CSMS Charter and First Meeting
1793	Physician Licensure
1812	Medical Institution of Yale College
1822	Connecticut Retreat (Institute of Living)
1826	First General Hospital of Connecticut (Yale-New Haven)
1841	State Registry of Deaths and their Causes
1867	Connecticut Valley Hospital (Middletown)
1878	Connecticut Sate Board of Health
1892	CSMS Centennial Celebration
1893	Connecticut Medical Practice Act
1935	Connecticut Tumor Registry (World's 1st Cancer Registry)
1936	*Connecticut Medicine* (Journal of the CSMS)
1942	CSMS Sesquicentennial Publication
1947	Connecticut Medical Service (CMS-Blue Shield)
1949	CSMS Building (160 Saint Ronan Street, New Haven)
1973	CSMS CME Accreditation of Hospitals
1974	*Connecticut SportsMedicine* Newsletter
1983	Connecticut Peer Review Organization (CPRO)
1984	Connecticut Medical Insurance Co. (CMIC)
1985	CSMS/HCMA Medicare Courtesy Card Program (Now ConnMAP)
1985	CSMS Countersuit Fund
1986	CSMS-IPA
1987	M.D. Health Plan
1988	CSMS Charitable Trust
1988	CSMS Physician Health Program
1988	First Countersuit Pays $99,000 to CSMS Internist
1989	CSMS Physician's Guild
1990	First Pictorial Directory of Connecticut Physicians
1991	CSMS Health Awareness Campaign
1992	CSMS Bicentennial Benefit
1993	CSMS Workers' Compensation Reform
1994	CSMS Headquarters Building Renovation
1995	PROCIS Physician Credentialing Service

This Month's Reading in Review

TIMOTHY B. NORBECK

National Public Radio reported on potential savings from Medicare managed care: "HMO supporters and critics alike say the only way to save the government a lot of money is if HMOs start taking care of chronically ill patients for the same flat fee they charge everybody…. HMOs say they are already doing that; critics aren't convinced yet"… Brookings Institute's Henry Aaron said that the savings that could be achieved through Medicare managed care would not significantly impact the "major factor pushing up costs," which is the proliferation of new medical technologies.

Philadelphia Inquirer (10 April 1995)

"We need hearings on managed care because any time you have an accumulation of power comparable to that in some of the communities in which managed care has a very large penetration, you need to have some kind of government review."

House Speaker Newt Gingrich in response to a
question at the AMA Leadership Conference in
Washington, D.C. (28 March 1995)

"What's happening in the U.S. is a massive substitution of paperwork for medical treatment and a massive shifting of the new costs of paperwork and monitoring onto patients and medical personnel. While the managed care plans and other insurers tell us how private enterprise and the competitive spirit are preserving the world's greatest health system and keeping us safe from bureaucracy, we patients are getting taken to the cleaners."

"Casey Thomas" (a pseudonym) in
The New Republic (10 April 1995)

Senator Alan Simpson (R-WY) said that he is investigating the AARP and its powerful "web of business interests"…. He and his staff are examining the AARP's books, financial interests "including a mail-order pharmacy and hiring practices"—and looking into the "group's receipt of federal grants, which he said total about $100 million a year"…. AARP responded that it "had nothing to hide" and that Senator Simpson had refused their offer to discuss the dispute and "clear up any confusion."

Baltimore Sun (8 April 1995)

According to CDC data, the number of fetal alcohol syndrome cases rose from one per 10.000 births in 1979 to 6.7 per 10,000 in 1993. The study found that one-fifth of women continued to drink after they learned they were pregnant.

Wall Street Journal (7 April 1995)

Connecticut's teen birth rate has increased 25% between 1980 and 1990.

Connecticut Association of Human Services

"I want a movie to be made for me after I kill everyone."

A note allegedly left by 16-year-old Jeffrey Howorth, who is accused of shooting his parents to death in their home in Macungie, Penn.

Chicago Tribune (10 March 1995)

An East Carolina University School of Medicine study found that sirens and lights saved 43.5 seconds per ambulance trip, a difference that is "not clinically significant"…. Emergency vehicles are involved in 12,000 crashes annually in the U.S. and Canada, and in 1990, 31 people were killed in crashes involving ambulances.

Washington Post (4 April 1995)

"America is in the midst of a new civil war, a war that threatens to undercut the civil basis of our society. The weapons of choice are not bullets and bayonets, but abusive lawsuits brought by an army of trial lawyers subverting our system of civil justice while enriching themselves."

George McGovern
Wall Street Journal (8 August 1994)

Only in America: In 1986, four young men were killed after drag racing their car at 115 mph on a street designed for 35 mph in Pleasonton, California. The parents sued everyone—the city, the county, the power company, and even the engineering firm that designed the road. That firm, MacKay and Somps, was ultimately found not negligent, but only after spending almost $300,000 to defend itself.

Wall Street Journal (7 March 1995)

NOTE: The Cox amendment, fought for and won in the House by the AMA, would limit noneconomic awards to $250,000 and would abolish joint-and-several liability for noneconomic damages. The amendment would have shielded MacKay and Somps from that abuse.

TIMOTHY B. NORBECK, Executive Director, Connecticut State Medical Society.

A child cries for food. We doctors must answer.

World hunger is an ever-present scourge that claims 35,000 lives each day.

Physicians Against World Hunger (PAWH) is a non-profit, tax-exempt organization, founded by physicians to defend the basic human right to food. In partnership with well recognized and reputable organizations PAWH supports hunger projects throughout the world.

Together physicians must bring an end to world hunger. We are sworn to protect human life. When people dying of hunger cry out for help, we must respond. — Please join us.

Physicians Against World Hunger
#2 Stowe Road, Peekskill, NY 10566 (914) 737-8570

☐ YES I wish to join PAWH in the struggle to end world hunger — enclosed is my contribution.

☐ $50 ☐ $100 ☐ $250 ☐ $500 ☐ Other _____

NAME *PLEASE PRINT*

ADDRESS CITY STATE ZIP

SIGNATURE

Please forward your tax deductible contribution to Physicians Against World Hunger #2 Stowe Road, Peekskill, NY 10566

From the Executive Director's Office

COUNCIL MEETING

Wednesday, 5 April 1995

Attendance

In addition to the Chairman, Dr. Joseph Czarsty, were Drs. Beck, Bigos, Bobruff, Brooks, Deren, Eslami, Franklin, Freedman, Geary, Herzog, Hollister, Kamens, Katz, Keating, McDonnell, Mushlin, Redmond, Sadowski, Scarpa, Schwartz, and Zanker.

Also present were: Mr. Norbeck, Ms. Lindquist, Mr. Brunell, Ms. Schaffman, Ms. Norbeck, Ms. Morelli, Mr. Sullivan (all CSMS staff), Mr. Joseph Coffey and Mr. Rick Fiorentino, (HCMA Staff), Mr. Michael Conway (FCMA), Vincent Catrini, M.D. and Doug Hayward, (MDHP), and James Orphanos, M.D.

Absent were: Drs. Ahamed, Lesnik, Montegut, Parke, Petro, Sosa, Tesoro, Timmerman, Van Nostrand, Watson, Wetstone, and Wolfson.

Reports of Related Organizations

CPRO: Dr. Kamens reported that they are continuing to work on projects, the latest being community-acquired pneumonia. This is being done in cooperation with the Connecticut Hospital Association and deals with the early and appropriate use of antibiotics and the relationship to mortality. There has been ample evidence shown that the rapid administration of antibiotics has diminished mortality rates. The mammography project has attained the outreach phase, and is being put into communities by focus groups, the purpose being to increase the rate at which mammographies are being carried out. There has been an under utilization of that service despite the fact Medicare pays for it. CPRO has been selected to run a training program for 17 PROs on the vascular project that will be carried out within a month.

M.D. Health Plan: Dr. Catrini and Mr. Hayward, (MDHP) joined the Council to give an update on current activities of M.D. Health Plan. It was reported that the merger of HSI with Wellpoint will in no way affect the prior arrangements made with HSI, and that the contracts that were drawn with both the IPA and MDEC remain the same. He reported that Dr. Hasan will remain as chairman of the HSI/Wellpoint Board and that the northeastern part of the country will be under the auspices of HSI. The new corporation is the largest publicly traded HMO in the United States and will follow the HSI format which is fee for service, cost containment, no restriction in the number of people coming into the organization, and support for any willing provider concept. He explained that the stock transfer is proceeding in an orderly fashion. Dr. Catrini reported that CSMS/IPA had a 15-year contract with MDHP which remains in force regardless of additional mergers. The question was raised that if the IPA should violate any part of the agreement, could the contract be broken? The response was *no* because it was not stipulated in the contract.

Office of Health Care Access (OHCA): Dr. Edward Kamens, a member of the Health Care Review Board, reported that there is no funding for OHCA, and the legislature and OHCA are going in multiple directions trying to find out how the legislative mandates to plan and provide for health care are to be carried out. At the present time they are trying to find out which ones of the various departments, such as the Health Department. Addiction Services, Department of Social Services, etc. will assume responsibility for what is included in the law, which was to reform health care in Connecticut. The reform seems to be centered on Medicaid, more than anything else, the thrust being managed care. There is pressure from the legislature to see to it that Connecticut goes into managed care as fast as possible. It was reported that the Commission would be abolished as of 1 June 1995.

Report of the President

Dr. Zanker reported that much has taken place since the last Council meeting. He met with the medical vice president and vice president of public relations of the Hospital of St. Raphael to discuss how the physician community and hospital community can collaborate more effectively, particularly on legislative issues. It was revealed that there is an Association of Medical Directors at the Connecticut Hospital Association; the council should be working more actively with them. At the meeting Dr. Zanker informed the officers of St. Raphael's about the state-wide program on physician health and discussed the possibility of the hospital supporting the program financially. He was informed that the most effective way to get the information out on the physician health program was to discuss it with the Association of Medical Directors, and seek their support, and request that they bring back the information to their respective hospitals.

The highlight of the month was the AMA Leadership Conference held in Washington on 25-29 March. Dr. Zanker reported there were many issues discussed and that Tim Norbeck had already circulated a report on the meeting to all members of the House of Delegates. It was an interesting meeting and good to be able to hear the speakers first hand. Tim was presented an award from the AMA for increasing AMA membership. The last day of the meeting was spent visiting with the Connecticut Congressional representatives which proved to be rewarding. Dr. Zanker reported that the "Any Willing Provider Bill" did not pass in committee by a 12-12 tie vote and stated that the effort made by CSMS lobbyist and staff was outstanding in supporting this bill, which, by all indications, appeared to be a lost cause.

Report of the Executive Director

Mr. Norbeck reported that he spoke before the AARP chapter in Meriden and can report that while they are our friends, the national AARP are not. The elderly like their physicians and stated that physicians should take advantage of any opportunity they have to meet with the AARP chapter in their area.

It was reported that a bill was introduced to the Connecticut General Assembly which is similar to legislation passed in Florida, Mississippi, and Massachusetts to make it easier for Connecticut to sue cigarette manufacturers and recoup the cost of treating Medicaid beneficiaries for tobacco related illnesses. If passed, the Attorney General will sue; the state claims that it costs 944 million dollars of the state's 1989 Medicaid spending to treat those illnesses. There is concern among the business community about what effect the bill could have on product liability suits and that the state would have an easier time in suing Connecticut manufacturers. Attorney General Blumenthal stated that it would limit the bill's scope to cigarette manufacturers but it was suggested that it could be unconstitutional for him to single out one industry.

In a New Jersey statewide poll, residents were asked whether selected medical procedures should be withheld for individuals over 75 years of age. The results were not surprising. Eighty-seven precent said health insurance should cover kidney dialysis, 86% said heart bypass surgery should be covered, 74% said coverage should not be witheld for liver transplants, 73% felt the same way about heart transplants. Sixty-one percent stated that anyone over 65, regardless of income, should be eligible for Medicare. He stated there is no question about it, Social Security and Medicare are the third rail in American politics; touch it and die, or at least get hurt pretty badly.

He reported that prospects for legislative relief from CLIA regulatory burdens are brighter. AMA is leading a broad coalition to modify or roll back the regulations and has written President Clinton asking the administration to support a bill exempting the nation's 89,000 CLIA registered physician office laboratories from the act. At least 4,000 physicians have discontinued their office laboratory business nationwide since the CLIA regulations went into effect in September 1992.

He noted that Medicare trustees reported to Congress "that the Medicare Hospital Trust Fund has gained a year of breathing room, but it is still heading for bankruptcy in the year 2002." The report is slightly less pessimistic than last year when it was reported that the trust fund would be exhausted in the year 2001. The report stated that in order to keep the hospital trust fund solvent over next 25 years, "outlays would have to be reduced by 30% or payroll taxes increased by 44%." Trustees shied away from offering any specific remedies. Medicare Part B is sound, partly because it has access to general fund revenues. Premiums paid by beneficiaries now amounts to 31% with the taxpayers pick up 69%; by the year 2004 it will be only 17%.

Physicians' Credentialing Services

At the last meeting of the Council, the minutes of the CSMS Ad Hoc Committee on Credentialing Services describing the proposed CSMS/HCD relationship were presented to the Council. The Council voted to endorse the PROCIS (Professional Credential Information Services) concept and authorized CSMS to develop an acceptable agreement with Health Care Directions (HCD). Dr. Roger Beck, Chairman of the Ad Hoc Committee, presented an executive summary of the CSMS-HCD sponsorship agreement using overhead slides and other explanatory material. Discussion and questions followed Dr. Beck's presentation. The Ad Hoc Committee voted unanimously to advise the Council that an acceptable agreement had been reached, which includes a loan of $50,000 to HCD, and to recommend that it be adopted by CSMS as finalized, and that CSMS sponsorship of PROCIS be expedited. It was VOTED to approve the Ad Hoc Committee's recommendation.

Hartford/New Haven Counties Shared Services Project

Dr. Stanley Keating, Jr., reported to the Council that the Boards of Directors of the Hartford County Medical Association (HCMA) and the New Haven County Medical Association (NHCMA) have jointly formed a new corporation called MedServ. Inc. The new company will provide all staff and administrative services to the two county medical associations and their affiliated corporations. The integration will not be a political merger, but a service merger integrating various business activities. He informed the Council that Hartford County has put together a Marketing Service Organization (MSO) which they intend to market to medical group practices throughout the state and would like to field an HMO that would include all doctors. Under the new shared administrative and staffing arrangements, both county medical associations will remain separate and distinct organizations. Dr. Craig Czarsty also commented on the integration and stated that in no way would it affect CSMS activities.

Comments of the President

Dr. Zanker reported that this was his last Council meeting as president and that it had been a very productive and rewarding year and that it was a pleasure to serve as the CSMS president. Dr. Zanker was given a standing ovation.

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BERNSTEIN, DWIGHT J., University of Vermont College of Medicine, 1933. Dr. Bernstein was a pediatrician in New Britain for 30 years and was on the pediatric staff of New Britain General Hospital. He later served in the emergency room of New Britain General Hospital. Dr. Bernstein was a past president of the New Britain Medical Society, and was a member of the Hartford County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Bernstein died 8 April 1995 at the age of 86.

BIRCHALL, ELLEN F., University of Vermont College of Medicine, 1947. From 1954 to 1964, Dr. Birchall maintained a private practice in neurology and psychiatry in New London. In 1965 she became the associate commissioner, for New York State Department of Mental Hygiene and was regional director of community services. From 1974 until her retirement in 1980, Dr. Birchall served as the medical director of the Jefferson County Rehabilitation Center and was a consultant to the St. Lawrence Psychiatric Center. She was a member of the New London County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Birchall died 16 February 1995 at the age of 74.

CHAPNICK, GIRARD A., Vanderbilt University School of Medicine, 1964. Dr. Chapnick practiced surgery in Norwalk from 1972 until 1994. He was a past president of the Connecticut Chapter of the American College of Surgeons as well as a member of the Fairfield County Medical Association and the Connecticut State Medical Society. Dr. Chapnick died 27 March 1995 at the age of 56.

CROSSMAN, WAYNE F., Georgetown University School of Medicine, 1965. Dr. Crossman maintained a private practice in internal medicine in Fairfield for 23 years and was on the attending staff at St. Vincent's Medical Center. He was a member of the Fairfield County Medical Association and the Connecticut State Medical Society. Dr. Crossman died 15 March 1995 at the age of 55.

ESPOSITO, JOSEPH J., Columbia University College of Physicians and Surgeons, 1937. Dr. Esposito, a Bridgeport radiologist, was former Chairman of the Department of Radiology at Bridgeport Hospital where he directed the Radiology Residency program as well as the Radiology Technician's program. He served as past president of the Greater Bridgeport Medical Association. Dr. Esposito was a member of the Fairfield County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Esposito died 1 March 1995 at the age of 82.

GAINES, GAIL A., Medical College of Pennsylvania, 1951. Dr. Gaines was the founder and director of the Putnam County, New York Mental Health Services from 1959 to 1968. She worked as a staff psychiatrist at Waterbury Hospital from 1968 until her retirement in 1985. Dr. Gaines maintained a private practice in Newtown and worked as a consultant to Catholic Family and Community Services in Danbury and area nursing homes. She was a member of the New Haven County Medical Association and the Connecticut State Medical Society. Dr. Gaines died 21 January 1995 at the age of 79.

REICHENBACH, ALFRED E., Tufts University School of Medicine, 1938. During his 40 years in practice, Dr. Reichenbach, a gynecologist and obstetrician, maintained a private practice in the Waterbury area. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Reichenbach died 22 January 1995 at the age of 80.

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Surveillance of Cancer Incidence in Connecticut Counties and Towns, 1989-91

ANTHONY P. POLEDNAK, PH.D. AND JOHN T. FLANNERY, B.S.

ABSTRACT—Using the population-based Connecticut Tumor Registry, cancer incidence was examined for residents of Connecticut's eight counties and 169 towns in 1989-91. Findings included high standardized incidence ratios (SIRs) for: certain smoking-related cancers for women in New London County; several cancers (bladder, kidney, and mesotheliomas) for men in Middlesex County; Kaposi's sarcoma in Fairfield County, and in the towns of Hartford and New Haven; skin melanoma in certain ocean-shoreline towns; and invasive cervical cancer in several larger cities. Cancer surveillance data should be useful for promoting such efforts as smoking prevention and cessation, the collection of data on occupation and smoking by physicians and hospitals, reduction in excessive sun exposure, and increased screening for cervical cancer in large towns.

Introduction

ANALYSIS of the ratio of observed to the expected number of cancers, the "standardized incidence ratio" or SIR, by geographic area is a tool in cancer surveillance. Although some ratios will appear to be high or low by chance alone, unusual geographic patterns could suggest the need for further studies to explain these patterns and to target interventions aimed at reducing exposure to known carcinogens. This study analyzed variation in SIRs by county and town of residence for various cancers for each sex diagnosed among Connecticut residents in 1989-91, using data from the population-based Connecticut Tumor Registry.

Methods

The time period 1989-91 was selected because 1990 Census data were available on the age distribution (by sex) of the population of each town; 1991 was the latest year of diagnosis for which data were considered to be complete. In situ tumors were excluded, with the sole exception of in situ bladder tumors (due to difficulties in distinguishing in situ from invasive bladder tumors).[1]

To obtain expected numbers for each of 169 towns and eight counties, average annual incidence rates for males and females by age (0-4 years to 85+ years) for 1989-91 for Connecticut were multiplied by 1990 census data on male or female populations in each age group for each town and county. Confidence limits (95%) on each SIR were calculated.[2] SIRs may be multiplied by the crude statewide rate for 1989-91 for each sex (shown in Table 1) to obtain sex-specific, age-adjusted rates for each county or town. Cancers were coded to the International Classification of Diseases for Oncology (ICD-O) (Table 1). Lymphomas were not coded to the site of occurrence, but grouped together into separate categories:[1] Hodgkin's disease (morphology codes 9650-9667) and non-Hodgkin's lymphoma (morphology codes 9590-9642, 9670-9704). Leukemias were defined by morphology codes 9800-9940, and Kaposi's sarcoma by code 9140. SIRs were not calculated for specific racial-ethnic groups because of the small population sizes for minorities in most towns, and problems with identifying Hispanics in the registry. While this report tabulates only those counties and towns with

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statistically significantly elevated SIRs for common cancer sites, a monograph (available from the Registry) includes SIRs for 23 cancer sites in all eight counties and 169 towns.[3] State and local agencies, as well as medical professionals, may use these data in responding to inquiries from patients, concerned citizens, legislators, hospitals, and news media.

Results

For all sites combined, males (but not females) in Hartford and Middlesex counties had slightly elevated SIRs, along with females in Fairfield County, that reached statistical significance because of the large numbers of cancer cases involved (Table 1). The towns of Hartford, East Hartford, and New Britain (all in Hartford County) had significantly elevated SIRs for males but not females. Significantly elevated SIRs for all sites combined for females involved several widely scattered towns in the southern part of the state.

For oral cavity and pharynx, the SIR for Hartford County was significantly elevated, along with the SIRs for the towns of East Hartford, Hartford, Bridgeport, and New Haven for males but not for females (not shown), while the SIR was significantly elevated for females in Vernon. For stomach the SIR for Hartford County was significantly elevated for females; for both males and females, the SIR for the town of Hartford was significantly elevated. The SIR for New Britain was significantly elevated for females (Table 1) and slightly elevated for males (not shown). For colon little variation was found in SIRs by county in either sex; significantly elevated SIRs were found for both males and females in Plainfield and males in Pomfret. For rectum only the SIR for Litchfield County in females was significantly elevated, due in part to a significantly elevated SIR for Plymouth; the SIR for East Haven was significantly elevated for females (Table 1) and slightly elevated for males (not shown), and the same pattern also held for Milford. For pancreas, the SIR for New London County was significantly elevated for females (Table 1) and slightly elevated for males (not shown); the same pattern held for several towns in New London County (ie, East Lyme, Lebanon, Montville, and Norwich), while the SIR was significantly elevated for males in Clinton (in Middlesex County).

For lung the SIR was significantly elevated for males in New Haven County and females in New Haven and New London counties. For males a few towns in the New Haven area (Wallingford and Seymour) had significantly elevated SIRs, and the SIRs for Meriden and Middletown were significantly elevated only for males. SIRs were significantly low for both males and females in West Hartford (not shown).

For skin melanoma New London County had the highest SIR for both sexes (significantly elevated for females); some of the towns with significantly elevated SIRs were located on or near the ocean shoreline.

For female breast cancer the SIR was significantly high for Fairfield County (Table 1) and significantly low for Windham County (not shown); only four towns had significantly elevated SIRs and few towns had SIRs greater than 1.5. For cervical cancer the significantly elevated SIR for Fairfield County was strongly influenced by the high SIR for Bridgeport. Despite the significantly elevated SIR for the town of Hartford (Table 1), Hartford County had a low SIR for cervix because of low SIRs in more affluent surrounding towns such as West Hartford, Glastonbury, and Wethersfield (not shown); significantly high SIRs were noted for the towns of New Haven, Middletown, New London, and Windham. For corpus uteri the SIR was significantly elevated for Windham County, and for Madison (in New Haven County) and Plainfield (in Windham County). For ovary, the SIR was significantly elevated for both New Haven and New London counties and a few widely scattered towns.

For prostate, the SIR was significantly elevated for Hartford County and for a large number of towns within the county. For urinary bladder, the SIR was significantly elevated for males in Middlesex County and females in Fairfield County (Table 1), and significantly reduced for females in New London County (not shown); few towns had significantly elevated SIRs . For kidney, the SIR was significantly elevated in Middlesex County for males and New London County for females; for females, several towns in New London County had slightly elevated SIRs (not shown), but only that for Norwich was significantly high.

SIRs for other (less frequent) cancer sites are not shown, but are available elsewhere.[3] For esophagus (ICD-O 150), none of the counties had significantly elevated SIRs for males or females; SIRs were significantly elevated only for the towns of Hartford (based on 24 cases) and Middlefield (based on three cases) for males and Hartford (11 cases) and Weston (three cases) for females. For larynx (ICD-O 161), none of the counties had a significantly elevated SIR for either males or females; the SIR was significantly elevated for the towns of New Haven and Waterbury for males, and Waterbury for females. For testis (ICD-O 186), none of the SIRs by county were significantly different from unity; the SIRs was significantly low in the town of Hartford and significantly high in Westport and Danbury. For brain and central nervous system (ICD-O 191-192), only the low SIR for males in Litchfield County was statistically significant; only four towns had significantly elevated SIRs. For thyroid, only the low SIR for Windham County in females was statistically significant, and only four towns had significantly elevated SIRs (all based on seven or fewer cases). For leukemia, none of the SIRs by county were significantly different from unity (1.00) in either sex; SIRs were significantly elevated for three towns in males (Ansonia, Madison, and Torrington) and one town in females (Branford). For non-Hodgkin's lymphoma, the SIR was significantly reduced in Tolland and Windham counties for males but not for females, and none of the SIRs by county were significantly elevated; significantly elevated SIRs were found for widely scattered towns (seven for males and two for females). For Kaposi's sarcoma in males, SIRs were elevated for Fairfield and Hartford counties and the towns of Greenwich, Hartford, New Britain, and New Haven; there were only 15 cases among females, and no town had more than two cases.

Discussion

For all cancers combined, the significantly elevated SIR for males in Hartford County was largely due to high SIRs for oral cavity, stomach (not significant), and prostate. The significantly high SIR for Middlesex County for males was not due to significantly elevated SIRs for all sites combined in any specific town but to significantly elevated SIRs for bladder and kidney and slight elevations in various towns in the county for other sites (colon, lung, skin melanoma, prostate, leukemia, and non-Hodgkin's lymphoma). For females, the significantly elevated SIR for all sites combined in Fairfield County reflected high SIRs for melanoma in the town of Fairfield, rectum and lung in Milford, and bladder in Stratford (Table 1), along with esophagus in Weston (not shown).

These analyses must be interpreted with caution, because of the roles of chance, inaccuracies in coding of town of residence, and the limited time period covered (ie, three years). The long average latency period between exposure to carcinogens and appearance of cancer, and population migration, complicate all geographic analyses of cancer. Statistical adjustment (in the *P* value) because of multiple comparisons (ie, the large number of SIRs analyzed), not done in this report, reduces the chance that the null hypothesis (ie, that the SIR=1.00) will be erroneously rejected but also increases the chance of failing to reject the null hypothesis for real associations.[4] Studies of cancer "clusters" have rarely led to the identification of new carcinogens,[5] but the prevalences of known cancer risk factors may vary geographically. The present ecologic analyses can only suggest hypotheses to be examined in detailed studies.

The elevated SIRs for oral cavity-pharynx and stomach cancers in Bridgeport, Hartford, and New Haven for males may reflect lower social class (related to higher prevalence of smoking) and the large black and Hispanic populations.[6-7] High SIRs for invasive cervical cancer in Windham County and in the cities of Bridgeport, Hartford, New Haven, and Windham, reflect higher poverty rates. In contrast, breast cancer rates are positively associated with social class, and are lower among black than among white women after about age 45 years;[8] this could explain the high SIRs in certain more affluent, predominantly white towns (Table 1) and low SIRs in Hartford and New Haven (not shown).

About 87% of lung cancers are attributable to smoking,[9] and high SIRs in Meriden and Wallingford for males but not females suggest higher smoking rates in males (and/or occupational exposures). Surveys of smoking habits are needed for women in New London County, with regard to the high SIRs for cancers of the pancreas, lung, and kidney. While the SIR for bladder cancer in New London County females was not elevated, cigarette smoking accounts for only about 29% of bladder cancers in females.[9,10] The high SIRs for oral cavity-pharynx cancers in certain affluent towns in Fairfield County suggests the possibility of higher alcohol intake; socioeconomic indicators are positively associated with some measures of alcohol intake.[11]

The high SIR for bladder cancer in Middlesex County for males but not females suggests a need for studies of occupational factors (eg, exposure to dyes, rubber, leather, paints, and aluminum processing).[9] Although geographic variation in lung cancer incidence rates has been attributed to variation in smoking habits,[12,13] asbestos exposure in the shipbuilding industry during World War II could be involved in the high SIRs for lung cancer for males in Stratford (Table 1) and Groton (SIR=1.22, 95% CL=0.91-1.63; data not shown), and possibly for women in New London County (Table 1) and Stratford (1.17; 95% CL=0.92-1.49). However, the significantly elevated SIR for lung cancer for women in New London County was due largely to high SIRs for the noncoastal towns of Norwich and Montville. Also, the SIR for mesotheliomas (known to be caused by asbestos exposure) in 1989-91 (data not shown) was not significantly high for females in New London County (three observed *vs* 2.2 expected). Elevated SIRs for mesothelioma for males in Middlesex County (SIR=3.81, 95% CL=1.74 and 7.24), and for the towns of Meriden (3.96, 95% CL=1.08 and 10.12) and Middletown (4.89, 95% CL=1.01 and 14.28), suggest the hypothesis of occupational exposures to asbestos. While past occupational exposures cannot be modified, smoking cessation programs could be beneficial because of the synergistic relationship between smoking and asbestos exposure.[15] Impaired pulmonary function is a predictor of cancer and other diseases, and is useful in motivating smoking cessation among patients.[16]

High SIRs for certain shoreline towns with large beaches and/or state parks suggest that the hypothesis of periodic exposure to intense sunlight deserves exploration.[17] Previous ecologic studies in Connecticut have not shown significant associations between terrestrial radiation levels and cancer incidence by town,[18] or between leukemia death rates and residence in towns surrounding nuclear power plants,[19] although increased detection of cancer and stress-related cancers in populations around nuclear plants have been hypothesized.[20] For the area within 10 or 20 miles of two nuclear power plants, only Madison (in New Haven County) had a significantly elevated SIR for males in 1989-91 (Table 1) and the SIR for females was based on small numbers (four cases *vs* two expected). Future studies should examine associations between water chlorination and rates of bladder and rectal cancers.[21]

Geographic variation in hysterectomy rates and the use of both oral contraceptives and estrogen "replacement" hormones, related to socioeconomic and medical-care factors,[22] could affect the SIRs for uterine corpus, cervix, and ovary. The high SIR for corpus in Windham County, for example, could reflect relatively low hysterectomy rates associated with lower social class. Higher SIRs for Kaposi's sarcoma (but not non-Hodgkin's lymphoma) in parts of Fairfield County (especially Greenwich) adjacent to New York City, as well as in the cities of Hartford and New Haven, are consistent with a higher prevalence of the human immunodeficiency virus (HIV).[23]

Expanded cervical cancer screening programs in large urban areas (eg, Bridgeport, Hartford, and New Haven)[24] and in certain rural towns (mainly, Windham) may be needed, perhaps involving community health centers (as also suggested for breast cancer screening)[25] Apparent geographic variation in incidence rates for prostate cancer could involve variation in medical care which influences the probability of detecting "latent" or subclinical cancers.

Finally, another approach to cancer surveillance is to define geographic areas with unusual environmental levels of carcinogens and monitor cancer rates in these areas. The need for "exposure assessment" and appropriate "clean-up" rather than more "cluster" studies of disease has been advocated.[4] This should include assessment of the prevalence of various behaviors (eg, smoking, alcohol, diet, sexual behavior, and sunbathing), which probably account for the majority of all cancers,[26] as well as occupational/environmental exposures.

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Table 1.—Counties and Towns with Statistically Significantly Elevated Standardized Incidence Ratios (SIRs), 1989-91.

County/town	Cases	SIR	95%	CL[a]	County/town	Cases	SIR	95%	CL[a]
					All Sites Combined				
	Males (501.2)[b]					*Females (474.8)*[b]			
Counties									
Hartford	6,897	1.06	1.04	1.09	Fairfield	6,330	1.04	1.01	1.07
Middlesex	1,099	1.08	1.02	1.15					
Towns									
Bloomfield	230	1.22	1.07	1.39	Cheshire	211	1.21	1.06	1.39
Clinton	101	1.34	1.10	1.64	Groton	262	1.15	1.02	1.30
E. Hartford	476	1.15	1.05	1.26	Madison	137	1.21	1.02	1.44
Hartford	851	1.15	1.07	1.23	Milford	453	1.19	1.09	1.31
Killingly	129	1.23	1.04	1.47	New London	232	1.21	1.07	1.38
New Britain	696	1.13	1.04	1.21	N. Branford	95	1.26	1.02	1.55
Old Saybrook	114	1.26	1.04	1.52	Sprague	29	1.59	1.07	2.29
Prospect	77	1.36	1.08	1.70	Stratford	515	1.10	1.01	1.20
Stafford	104	1.41	1.16	1.72	Weston	69	1.32	1.04	1.68
Voluntown	25	1.95	1.26	2.89					
Winchester	104	1.23	1.01	1.50					
					Oral Cavity, Pharynx (ICD-O 140-149)[c]				
	Males (16.5)					*Females (6.3)*			
Counties									
Hartford	247	1.18	1.04	1.34					
Towns									
Bridgeport	42	1.46	1.07	1.99	Greenwich	16	1.81	1.03	2.92
E. Hartford	25	1.86	1.20	2.75	Stonington	7	2.87	1.15	5.90
Hartford	48	2.03	1.51	2.71	Vernon	9	2.59	1.19	4.93
New Haven	36	1.56	1.11	2.18					
					Stomach (ICD-O 151)				
	Males (13.5)					*Females (8.2)*			
Counties					Hartford	143	1.25	1.06	1.48
Towns									
Hartford	38	1.90	1.37	2.64	Columbia	3	7.15	1.47	20.89
Torrington	19	2.30	1.38	3.59	Hartford	29	2.16	1.44	3.10
					New Britain	26	2.39	1.56	3.52
					Prospect	4	4.22	1.15	10.81
					W. Haven	15	2.12	1.18	3.49
					Colon (ICD-O 153)				
	Males (47.0)					*Females (46.3)*			
Towns									
E. Haddam	10	2.17	1.04	3.99	New Canaan	26	2.00	1.30	2.94
Plainfield	18	2.32	1.38	3.67	Orange	20	1.97	1.20	3.04
Pomfret	7	3.88	1.55	7.99	Plainfield	15	1.82	1.02	3.01
Prospect	13	2.46	1.31	4.21	Simsbury	22	1.75	1.10	2.65
					Woodbridge	11	2.03	1.01	3.63

County/town	Cases	SIR	95%	CL[a]	County/town	Cases	SIR	95%	CL[a]
					Rectum (ICD-O 154)				
	Males (22.9)						*Females (17.7)*		
Counties					Litchfield	65	1.34	1.04	1.72
Towns									
Plainfield	9	2.35	1.08	4.47	E. Haven	14	1.90	1.04	3.20
					Milford	23	1.72	1.09	2.58
					Plymouth	7	2.58	1.03	5.31
					Pancreas (ICD-O 157)				
	Males (10.8)						*Females (7.7)*		
Counties					New London	62	1.55	1.20	2.00
Towns									
Clinton	5	3.17	1.03	7.39	E. Lyme	9	4.25	1.95	8.07
Harwinton	4	4.26	1.16	10.90	Lebanon	3	5.16	1.06	15.08
Stafford	5	3.20	1.04	7.45	Montville	6	3.12	1.14	6.79
					Norwich	15	1.93	1.08	3.19
					Trachea, Bronchus, and Lung (ICD-O 162)				
	Males (88.7)						*Females (55.8)*		
Counties									
New Haven	1132	1.08	1.02	1.15	New Haven	771	1.10	1.02	1.18
					New London	242	1.24	1.09	1.41
Towns									
Bristol	101	1.29	1.05	1.57	Eastford	4	4.06	1.10	10.39
Canaan[d]	14	1.98	1.08	3.33	E. Granby	8	2.57	1.11	5.07
E. Hartford	97	1.29	1.05	1.58	Milford	62	1.36	1.05	1.76
Killingly	30	1.60	1.08	2.29	Norwich	56	1.58	1.20	2.06
Meriden	97	1.27	1.04	1.56	W. Haven	73	1.49	1.18	1.89
Middletown	62	1.32	1.02	1.70					
Seymour	31	1.57	1.08	2.26					
Stratford	108	1.24	1.02	1.50					
Wallingford	73	1.32	1.04	1.67					
					Skin Melanoma (ICD-O 173)				
	Males (16.8)						*Females (14.1)*		
Counties					New London	71	1.38	1.09	1.75
Towns									
Fairfield	26	1.76	1.15	2.59	Fairfield	27	2.04	1.35	2.98
Groton	16	1.86	1.07	3.02	Groton	15	2.06	1.15	3.40
Madison	10	2.41	1.16	4.44	Madison	11	3.05	1.52	5.46
New Canaan	12	2.43	1.26	4.25	Orange	8	2.53	1.09	4.98
New Milford	12	2.38	1.23	4.16	Roxbury	3	6.92	1.88	17.72
N. Haven	13	1.95	1.04	3.34					
W. Hartford	29	1.62	1.09	2.34					
Westport	14	1.95	1.06	3.27					

County/town	Cases	SIR	95%	CL[a]	County/town	Cases	SIR	95%	CL[a]
Females									
Breast (ICD-O 174) (146.3)					**Cervix** (ICD-O 180) (9.8)				
Counties									
Fairfield	2,023	1.07	1.02,	1.12	Fairfield	160	1.25	1.07,	1.46
Towns									
Groton	97	1.41	1.15,	1.72	Bridgeport	35	1.71	1.19,	2.38
Milford	142	1.20	1.02,	1.42	Hartford	29	1.59	1.07,	2.29
W. Hartford	224	1.16	1.02,	1.33	Middletown	13	2.09	1.11,	3.58
Wethersfield	114	1.35	1.12,	1.62	New Haven	30	1.65	1.11,	2.36
					New London	10	2.73	1.31,	5.02
					Windham	8	2.58	1.11,	5.09
Corpus Uteri (ICD-O 181) (28.2)					**Ovary** (ICD-O 183) (19.5)				
Counties									
Windham	54	1.34	1.02,	1.76	New Haven	274	1.15	1.02,	1.30
					New London	88	1.30	1.05,	1.61
Towns									
Easton	10	3.55	1.70,	6.52	Ansonia	13	2.19	1.17,	3.75
Madison	13	1.93	1.02,	3.29	Cromwell	9	2.31	1.06,	4.40
Plainfield	12	2.42	1.25,	4.24	Harwinton	5	3.50	1.13,	8.15
Southbury	20	1.84	1.13,	2.84	Middlebury	6	2.98	1.09,	6.50
					Sprague	4	5.30	1.44,	13.57
Males									
Prostate (ICD-O 185) (116.9)									
Counties									
Hartford	1,913	1.26	1.20,	1.32					
Towns									
Avon	40	1.58	1.14,	2.17	Hampton	7	2.82	1.13,	5.81
Bloomfield	95	2.04	1.66,	2.51	Hartford	210	1.26	1.10,	1.44
Bolton	14	2.09	1.14,	3.51	Old Saybrook	35	1.61	1.14,	2.26
Canton	23	1.99	1.26,	2.99	Simsbury	44	1.42	1.04,	1.92
Farmington	55	1.43	1.08,	1.87	W. Hartford	218	1.43	1.25,	1.63
Glastonbury	82	1.90	1.52,	2.38	Wethersfield	100	1.46	1.19,	1.78
Granby	25	2.30	1.49,	3.41	Windsor	73	1.53	1.21,	1.94

County/town	Cases	SIR	95%	CL[a]	County/town	Cases	SIR	95%	CL[a]
				Bladder (ICD-O 188)					
		Males (37.6)					*Females (14.0)*		
Counties									
Middlesex	95	1.24	1.01	1.52	Fairfield	216	1.21	1.06	1.39
Towns									
Winchester	18	2.84	1.68	4.48	Litchfield	6	2.93	1.07	6.38
					Middlefield	4	4.85	1.32	12.42
					Stratford	24	1.68	1.08	2.51
				Kidney (ICD-O 189)					
		Males (16.6)					*Females (9.5)*		
Counties									
Middlesex	46	1.38	1.01	1.85	New London	47	1.42	1.04	1.89
Towns									
E. Hartford	24	1.77	1.13	2.63	Granby	4	3.97	1.08	10.16
New Haven	35	1.47	1.04	2.07	Norwich	14	2.32	1.27	3.89
					W. Haven	15	1.82	1.02	3.00

[a] Confidence limits (95%) on SIR (see text).

[b] Average annual crude incidence rate (per 100,000) for the entire state .

[c] International Classification of Diseases for Oncology (ICD-O) code.

[d] Canaan and North Canaan were combined, due to problems in assigning town of residence.

Note: Copies of a monograph with SIRs for all eight counties and 169 towns[3] are available from the Connecticut Tumor Registry.

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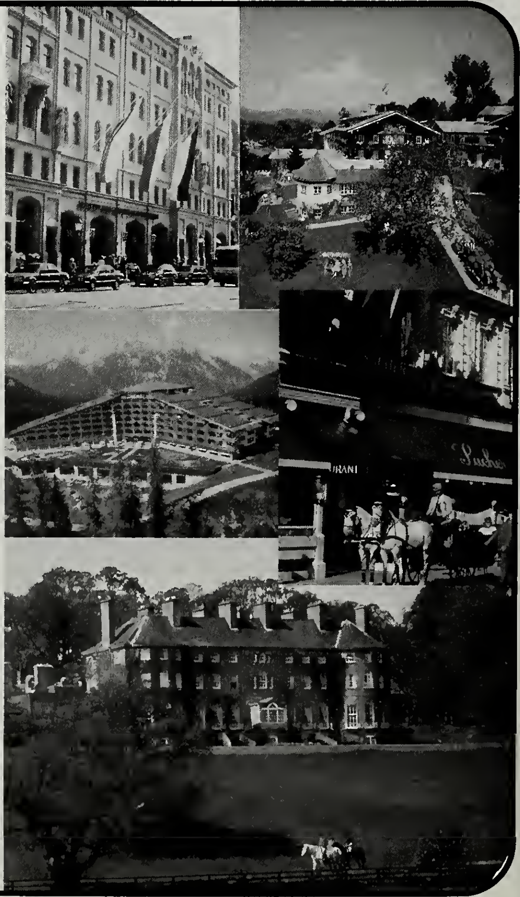

Bladder Stones Formation Eight Months After Treatment of Hairy-Cell Leukemia with 2-Chloro-Deoxyadenosine: A Case Report

OCTAVIO BESSA, JR., M.D.

SINCE the publication of Piro et al[1] showing lasting remissions in hairy-cell leukemia (HCL) with a single seven-day infusion of 2-chloro-deoxyadenosine, this form of therapy has become the standard treatment for this low grade B-cell neoplasm. This unusual case reported here is perhaps the first in the literature where pure uric acid stones were initially formed in the bladder: a 69-year-old male with marked splenomegaly had the diagnosis of HCL made five years previous to his initial treatment with 2-chloro-deoxyadenosine.

In October 1993 he received one seven-day course of that medication as well as 300 mg of allopurinol daily. In the ensuing four months the splenomegaly disappeared and the peripheral blood cells and bone marrow returned to normal both in morphology and distribution. In July 1994 he began to expel painlessly pure uric acid stones measuring between 1 mm and 3 mm in diameter. In the patient's own words, "I began to shoot pellets ... perhaps a handful a week." Radiologic studies revealed a normal upper genitourinary tract and multiple defects in the bladder. Several weeks later urologic intervention retrieved nearly 100 small calculi from the bladder. A transurethral prostatic resection was performed. The patient recovered well and has remained in remission since.

It seems that in this case, chronic urinary retention with minimal symptomatology was responsible for the crystallization of uric acid in the bladder. Evidentally lysis of nucleotides continues for several months following the administration of 2-chloro-deoxyadenosine; monitoring of serum uric acid should be done during that period to prevent such complications.

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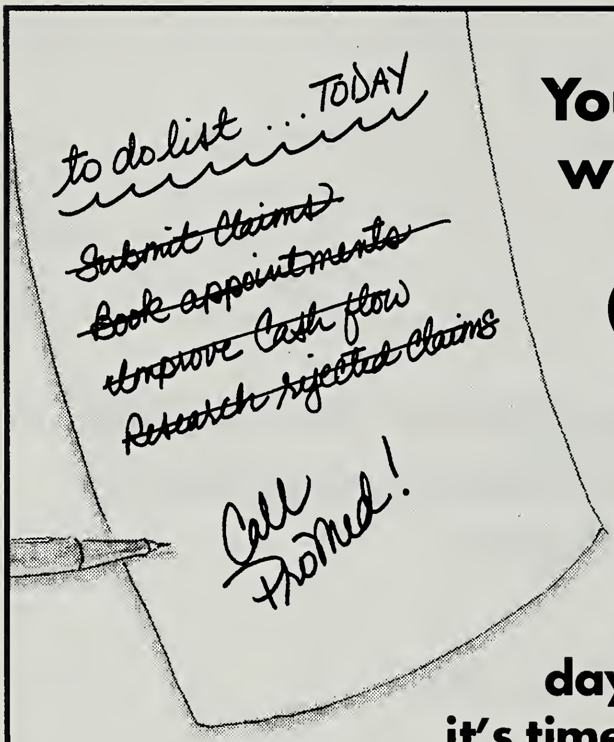
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Abstracts of Papers

CONNECTICUT SOCIETY OF AMERICAN BOARD SURGEONS

FOREWORD: These papers were presented at the combined annual meeting of The Connecticut Chapter of the American College of Surgeons and the Connecticut Society of American Board Surgeons at the 14 December 1994 meeting.

Upper Extremity Connective Tissue Tumors: The Connecticut Experience

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Background: Benign tumors of the hand and forearm are often asymptomatic and require no treatment. However, for lesions which show signs of an aggressive course, a tissue diagnosis should be obtained for appropriate staging and treatment. In fact, the incidence of upper extremity connective tissue malignancies has been increasing. However, little appeared in the literature regarding the diagnosis and treatment of these tumors. The authors examine the incidence and demographics of connective tissue tumors of the upper extremity in Connecticut and attempt to determine whether or not a correlation exists between industrial exposure and malignant tumors.

Materials and Methods: Using the Connecticut Tumor Registry, we have reviewed the incidence of upper extremity connective tissue tumors over a 40-year period. These cases were retrospectively reviewed to determine the demographics of these tumors with regard to: age at time of diagnosis, gender, histologic type, upper extremity location, and relevant family and occupational history. Multivariate-analysis was used to test for statistical significance.

Data and Results: Four hundred twenty-six upper extremity connective tissue malignancies were reported to the Connecticut Tumor Registry during the period 1952-91. Of these cases, 54% occurred in men and 46% in women. The average age at time of diagnosis for all tumors was 42 years for men and 36 years for women. There was an overall increase of 200% in the incidence of connective tissue upper extremity tumors during this study period. The population increase during this period was 3%. There was a decrease in the incidence of hemangiosarcomas (50%), however, the incidence of Kaposi sarcomas increased significantly (600%). Both leiomyosarcoma and liposarcoma showed an increased incidence (266% and 400%, respectively), and the incidence of rhabdomyosarcomas increased by 200%. This tumor was most commonly diagnosed in children; the average age at the time of diagnosis was 13 years (age range 6-24). Upper extremity connective tissue tumors were most common on the hand and wrist (64%); 35% of the tumors occurred on the forearm and arm. As expected, HIV infection had a positive correlation with Kaposi sarcomas of the upper extremity ($P<0.01$). Exposure to radiation and industrial chemicals also showed a positive correlation with the development of upper extremity connective tissue tumors ($P<0.01$).

Discussion: We have shown that the incidence of connective tissue tumors in Connecticut has been increasing during the past 40 years. The reasons for this increase are unclear; however, a positive correlation has been demonstrated in this patient population with increased exposure to possible carcinogens and an increased incidence of HIV infection. It is not clear if this trend in increased tumors exists nationwide. Preliminary data suggest a strong correlation between industrial exposure to potential carcinogens and the development of these tumors. The literature reviewing this subject is sparse and usually includes the incidence of bone tissue tumors. A high degree of suspicion is warranted in the approach to tumors of the upper extremity, as an increasing percentage of these tumors are shown to be malignant. Early detection may improve treatment and eventual outcome for these patients.

A 20-Year Experience with Soft-Tissue Sarcoma of the Chest Wall

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Purpose: Primary soft-tissue sarcomas of the chest wall are rare neoplasms. We reviewed our 20-year experience with these tumors.

Methods: The records of patients diagnosed with soft-tissue sarcoma of the chest wall were available for review from two hospital tumor registries. These patients had been treated between 1971 and 1993. Survival data were calculated by life-table analysis and the Kaplan-Meier method, with comparisons made by log-rank analysis.

Results: A total of 13 patients were studied from 1971 to 1993. The most common histologic type was malignant fibrous histiocytoma (39%), followed by Ewing's sarcoma, schwannoma, and rhabdomyosarcoma at 15% each, and fibrosarcoma and reticulum-cell sarcoma at 8% each. The most common presenting symptom (69%) was painless mass. The mean age was 47 years with a range from two years to 88 years. The mean follow-up time was 52 months. Thirty-nine percent of tumors were high grade and 61% were low grade. Metastasis occurred in 54% of patients. The overall one-year and five-year survival rates were 85% and 62%, respectively. The five-year survival rate for high-grade sarcoma (20%) was significantly lower than that for low-grade sarcoma (88%, P=0.0048).

Conclusion: Survival remains dismal for patients diagnosed with high-grade chest-wall sarcoma. The combination of surgical resection, radiation therapy, and chemotherapy offers the best chance for long-term survival.

Outpatient Management of Pneumothorax and Pulmonary Air Leak: An Update

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The current national concern for cost containment in medical care dictates that outpatient rather than inpatient treatment be considered when safety, comfort, and outcome are not compromised. Similarly, hospitalization need not be prolonged when ongoing problems can be managed safely at home. In 1987 we reported to this society our experience with outpatient management of pneumothorax in 21 patients as the preferred approach in most cases of primary pneumothorax, as well as in some cases of secondary pneumothorax. An informal survey of local institutions, however, suggested that most patients are admitted to the hospital.

We have now treated 170 cases of pneumothorax of postresectional air leak with outpatient chest tubes. In pneumothorax patients a short 12F or 16F tube is placed anteriorly and connected to a Heimlich one-way flutter valve. Thoracostomy is performed in the office, emergency room, or radiology department. In cases of postoperative air leak, the valve is fitted either onto an indwelling tube or a smaller newly placed anterior catheter. Patients are seen every two to four days in the office. Tubes are removed following cessation of air leak and full-lung reexpansion.

Patients, ages ranged from 17 to 88 years. While the majority (104) were young and presented with primary pneumothorax (small blebs with normal-lung parenchyma), the current group also includes a number of older patients (49) with secondary collapse chronic obstructive pulmonary disease (COPD, interstitial disease, iatrogenic). In addition, 17 patients with ongoing air leak as their sole postoperative problem following pulmonary resection were discharged with tubes in place.

Four patients had to be admitted because of tube or placement problems—one each with reexpansion pulmonary edema, dizziness, pain, and late purulent drainage. Three patients were admitted electively for definitive surgical treatment of a persistent air leak. Most tubes were removed within one week, with a range of two days to four weeks.

Outpatient tube thoracostomy is applicable to most patients with primary pneumothorax and many with underlying lung disease as well. In addition, patients with an air leak who are otherwise recovering well and have adequate lung expansion following resection rarely require hospitalization beyond 10 days. This approach results in high patient satisfaction and substantial cost and resource savings.

Gallstone Pancreatitis and Laparoscopic Cholecystectomy

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Preliminary review of the 1992 Connecticut cholecystectomy database showed a significant reduction in hospital length of stay (LOS) with laparoscopic (LC) *vs* open (OP) cholecystectomy in patients with concomitant pancreatitis (7.1 days *vs* 18.7 days). We reviewed all patients treated surgically at our institution for gallstone pancreatitis from 1989-93. Cholecystectomy was performed on 102 patients with the diagnosis of gallstone pancreatitis(GBP) as evidenced by right upper quadrant (RUQ) pain, radiologic confirmation of gallstones, and increased serum amylase and/or lipase. This group was stratified by Ranson's signs, age, operative technique (LC *vs* OP), endoscopic retrograde cholangiopancreatography (ERCP), and prior diagnosis of gallstone pancreatitis. Mortality was 0%. L O S: 14.8 days for LC *vs* 14.3 days for OP. Major complications (ie, reoperation, septicemia, pancreatic necrosis/abscess, pseudocyst, hemorrhage) occurred in 8/54 patients undergoing LC *vs* 5/48 patients with OC. LOS for LC with complications: 40.2 days *vs* 52.8 days in OP patients with complications. Patients were stratified according to prior admission for gallstone pancreatitis. LOS with prior GBP: 12 days, no prior GBP: 13.5 days.

Eighty-six patients (LC = 41; OP = 45) had mild to moderate pancreatitis as defined by total Ranson's signs <5. In all 86 patients, average total LOS: 12.6 days. LOS for LC in this group: 12.1 days *vs* 13.1 days for OC. The longer preoperative LOS for LC of 6.8 days (*vs* OC of 3.9) was offset by a shorter postoperative LOS of 5.3 days (*vs* OC of 9.2). In LC patients, LOS was the same with or without ERCP.

Stratification by Ranson's signs correlated with a progressive increase in LOS. LOS doubled to 23.3 days when Ranson ≥5. In patients with C5 Ranson signs, age >55 correlated best with increased LOS in both LC and OP. LOS for patients with <5 Ranson signs who were less than 55 years old was half that of patients greater than 55 years of age (<55: 7.2 days *vs* >55: 16.0 days). Except for age, Ranson signs on admission were not a predictor of LOS. Admission amylase and/or lipase levels did not correlate with clinical course.

Conclusions: Our data demonstrate a modest reduction in LOS since the introduction of laparoscopic cholecystectomy, primarily in the postoperative period. Ranson signs, especially age, are a good predictor of long LOS. Total Ranson signs (at 48 hrs) >4 predicted a two-fold increase in LOS. LC does not alter the complication rate of GBP. In mild to moderate GBP, LC fails to reduce LOS primarily due to prolonged preoperative days. Combined with the failure of ERCP to reduce LOS, it is suggested that early LC with or without laparoscopic common duct exploration may yield improved results.

Education and the Ordering of Preadmission Testing

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Background: The need for extensive preadmission testing (PAT) has been questioned by many authors. Recent literature has suggested that the number of PATs could be drastically reduced without detriment to patient care. In 1991 our group presented a paper to the ACS/CSABS confirming that nearly all PATs done at our hospital were within normal limits and that routine testing of patients <60 years old or American Society of Anesthesiologists (ASA) status 1 or 2 was not always necessary. We suggested that considerable savings in costs, charges, time,and patient inconvenience would result if PATs were reduced.

Methods: As a result of our earlier study, an extensive project, including easing of the requirements for PAT, physician education, and the creation of a simple chart clarifying the ASA classification and listing the required PAT by ASA status, was undertaken. Three years later, the 1991 study was repeated. Prospective data were accumulated on 258 elective surgery patients. Parameters recorded were ASA status, age, surgical procedure, number, type, and charges for PAT ordered. Results were compared to those found in the 1991 study.

Results: The 258 patients studied in 1994 ranged in age from 13 to 87 years (mean 48.4). The 236 patients from 1991 were from 15 to 102 (mean 51.4) years of age. In 1994, twice as many patients were classified as ASA 1. For ASA 1 patients, an insignificant reduction in the number of tests was seen. For ASA 2 and 3 patients, the number of tests was reduced from a per patient mean of 5.0 ± 2.9 to 3.3 ± 2.8 (P <0.001), representing a 34% reduction. A statistically significant reduction in the number of most PATs was seen.

The reduction in PAT did not produce any adverse outcomes. At 1994 charges, a savings of more than $150,000 per year has been realized in our hospital.

Conclusions: Dissemination of a simple explanation of the ASA system seemed to increased the accuracy of patient classification. The number of preadmission tests in ASA Class 2 and 3 patients can be reduced by a program of reasonable and simplified PAT requirements and physician education. The reduction in PATs can decrease the charges to patients and third-party payers.

This table compares the 1994 and 1991 results for ASA 2 and 3 patients. (%).

YR	#	LYTES	CBC	PT	PTT	SMA-12	CxR	EKG	UA
91	165	120(73)	128(78)	103(62)	103(62)	71(43)	77(47)	106(64)	114(69)
94	82	40(48)*	50(61)*	29(35)*	28(34)*	29(35)	22(27)*	44(54)	29(35)*
Reduction	(25)	(17)	(27)	(28)	(8)	(20)	(10)	(34)	

YR=Year, # = number of patients, (ASA 2 and 3), LYTES = electrolytes, PT = prothrombin time, PlT = partial thromboplastin time, CxR = chest film, *P<O.Ol

Ductography in the Management of Bloody Nipple Discharge

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Spontaneous bloody nipple discharge (BND) is uncommon, occurring in less than 5% of patients requiring breast surgery. The underlying pathologic process is usually a benign condition such as intraductal papilloma, papillomatosis, duct ectasia, or fibrocystic mastopathy. Malignancy occurs in 6-15% of patients presenting with BND.

BND is usually treated by direct duct excision or complete central duct resection without prior radiographic delineation of ductal anatomy and pathology. We believe unguided duct excision may remove more tissue than is necessary, may fail to encompass a diffusely abnormal ductal system (as with papillomatosis), or miss the culprit lesion altogether. Therefore, we feel that preoperative ductography is extremely useful and should be routinely employed in BND patients who present without a palpable mass or abnormal mammogram.

Over a two-year period 18 patients, age 21-83 (mean 50) presented with a spontaneous BND, no palpable mass, and a normal mammogram. All patients underwent ductography and subsequent operation. Review of pathology revealed intraductal papilloma in 13 patients, duct ectasia and papillomatosis in two, and carcinoma in three (16%). One patient in this series had undergone previous unguided duct excision for BND. Pathological study indicated benign fibrocystic tissue; her BND recurred in six months later. Ductography demonstrated a papilloma which was then easily removed. The BND has not recurred.

Does Burying Tenckhoff Catheters Decrease the Incidence of Infection in Continuous Ambulatory Peritoneal Dialysis (CAPD) Patients?

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Background: Several authors have suggested that infection rates in CAPD patients can be reduced by burying the entire Tenckhoff catheter for at least two to four weeks before its use. A second procedure to expose the external portion of the catheter is needed. This retrospective study was undertaken to determine whether this practice reduces infection rates or affects catheter longevity in patients undergoing CAPD.

Methods: The records of 79 consecutive patients who had Tenckhoff catheters inserted between March 1989 and June 1994 were analyzed. Data were acquired by review of hospital charts and office records. Episodes of infection per patient-year of catheter use and catheter longevity were tabulated.

Results: Patients whose catheters were used for fewer than two months were excluded. The remaining 59 patients were divided into two groups: those whose catheters were initially buried (n=17) and those whose catheters were not (n=42). The two groups were comparable in age, body mass index, history of diabetes, other comorbidities, white blood cell count, hemoglobin, blood urea nitrogen, serum creatinine, and serum albumin. Life-table analysis revealed no difference in catheter longevity. The table compares the incidence of infections for the two methods of catheter insertion. The differences are not statistically significant.

Infectious complications
(episodes per patient-year of catheter use)

	Pt-yrs	*Peritonitis*	*Exit site inf.*	*Tunnel inf.*
Buried	61.4	0.69	1.17	0.14
Nonburied	14.6	0.90	0.85	0.07
Expected*		1.09	0.34	0.13

Pt-Yrs = Patient Years, Inf. = Infection, *Rates from published sources

Conclusion: The incidence of infection in patients undergoing CAPD is not reduced by burying the catheter, and catheter longevity is not enhanced. The added cost and inconvenience of the second procedure to expose the catheter may not be justified.

Preoperative Evaluation of Parotid Mass: Is Computed Tomographic (CT) Scan or Needle Biopsy Necessary?

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While CT scan and fine needle biopsy (FNB) are frequently included in the preoperative evaluation of parotid masses, their influence on intraoperative management of the facial nerve and deep lobe in malignant lesions has not been clearly defined. To clarify the role of these modalities, a retrospective chart review of 76 patients undergoing superficial (n=54) or total (n=22) parotidectomy over a 5 1/2 year period was undertaken. Cervical CT scans were obtained in 45 (59%) patients, and 49 (64%) patients underwent FNB as part of the work-up. Results were compared to preoperative clinical evaluation, intraoperative anatomical or frozen section findings, and final pathological diagnoses. Particular attention was focused on those patients with malignant disease.

Results: Benign tumors were found in 64 (84%) and malignant tumors in 12 (16%). Accuracy of CT scan in localizing masses to the superficial lobe was 91% and sensitivity for deep lobe involvement was 62%. Deep lobe involvement was demonstrated at surgery in five patients reported by CT to have masses confined to the superficial lobe. The accuracy of FNB was 65% with nondiagnostic results obtained in eight (16%) and misdiagnoses in nine

(18%). Almost all patients had intraoperative frozen section studies which were universally accurate when compared with final pathological diagnosis.

Clinical findings (facial nerve involvement, history of head or neck malignancy, rapid size increase) which indicated a high suspicion of malignancy were present in 75% (9/12) of patients with parotid malignancies. By contrast, FNB was only accurate in 30% (3/10) of patients with malignant tumors who underwent this study. Furthermore, no patient with benign disease demonstrated suspicious clinical findings. While two patients with malignant tumors underwent planned resection of the facial nerve due to involvement by tumor, there were no inadvertent permanent facial nerve injuries in this group. Ten patients (83%) are alive with no evidence of disease during a mean follow-up period of 2.25 years.

Conclusions: Preoperative CT scan and fine needle biopsy add minimal clinical useful information in the evaluation of patients presenting with parotid masses. Clinical evaluation will identify patients most likely to have malignant lesions. Appropriate management of the facial nerve and deep lobe may be based on operative assessment and frozen section examination thereby minimizing complications and achieving satisfactory survival results.

Combined Preoperative Radiation and Mitomycin/5-Fluoruracil Tratment for Locally Advanced Rectal Adenocarcinoma

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Advanced rectal carcinoma with local fixation remains a difficult surgical challenge even with preoperative radiation. During a four-year period, 20 patients with locally advanced adenocarcinoma of the rectum were treated preoperatively with simultaneous pelvic irradiation (4,030-6,040 cGy) and infusion chemotherapy (5-FU 100 mg/m^2/day over 96 hours and Mitomycin 10mg/m^2). Tolerance to preoperative treatment was very good (95%, one case of neutropenia) with all patients completing their scheduled preoperative treatment. Response to treatment showed a conversion to surgical resectability from 0% to 95%, reduction in residual tumor size by an average 53% (range: 20-94%), and complete pathological response in 21% (no local tumor found in surgical specimen). Using life-table analysis, the four-year cancer-free and local pelvic control rates were 54% and 84%, respectively. These limited results are very encouraging for this new combination mitomycin and 5-fluoruracil chemotherapy along with preoperative radiation for surgical control of advanced rectal carcinoma.

Trauma 24-Hour Observation Critical Path

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The critical path is a method of outlining and implementing activities involved in treating patients with a specific diagnosis within an anticipated time course. This method has been applied clinically to help standardize and improve patient care for a variety of medical and surgical conditions. A 24-hour observation critical path was developed at a Level I trauma center for the observation of blunt trauma victims with minimal findings but might develop manifestations of more significant injuries. The criteria were soon expanded to include victims of penetrating trauma of low severity.

Purposes: The purposes of this study were to evaluate the effectiveness of the 24-hour observation critical path for trauma patients, to evaluate the appropriateness of inclusion criteria, to analyze common variances (events that did not occur within the planned time frame), and to determine cost-containment measures.

Methods: A retrospective chart review of 122 patients placed on the 24-hour observation trauma critical path from 1 December 1993 to 31 May 1994 was performed. Information collected included patient demographics, hospital charges, injuries, length of stay, diagnostic tests, consultations, and variances from the critical path.

Results: Patients deemed inappropriately placed in the path (n=11) and patients who left against medical advice (n=3) were excluded. This reduced the study population to 108 patients Eighty-nine patients (80%) completed the path and had a mean length of stay of 24 hours and average hospital charges of $4,375. Of these patients, 67 were evaluated in the trauma resuscitation room and their average hospital charges were $4,807. The rest were evaluated in the surgical section of the emergency department and their average hospital charges were $3,057. Radiological evaluation included brain computed tomographic (CT) scan (hospital charge $456) in 36 patients and abdominal CT scan (hospital charge $497) in 21 patients. The 19 patients who did not complete the path had a mean length of stay of 60 hours and average hospital charges of $5,736. The causes for failing to complete the path were: postconcussive symptoms (n=11), fractures discovered during a tertiary survey (n=3), and further testing and evaluation by consultants (n=5). Analysis of a subset of 59 patients that completed the path but had variances revealed that the most frequent variant events included: early feeding (n=21), change in analgesic requirements (n= 15), earlier ambulation (n=7), discontinuation of intravenous fluids within 12 hours of admission (n=6), and discontinuation of bladder catheter within 12 hours of admission (n=5).

Conclusions: The EMS/TRAUMA service may appropriately identify trauma victims suitable for observation using a critical path. The inclusion criteria may be expanded to include victims of penetrating torso or extremity trauma of low severity without compromising patient care. Common variances in the critical path may be identified and used to modify the timing of planned outcomes. Cost-reduction strategies may include reevaluation of the triage criteria to the trauma resuscitation room and more stringent guidelines for use of brain and abdomen CT scans.

Trauma Level Designation: How Much Neurosurgical Coverage Is Necessary?

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While guidelines for trauma center designation have improved the level of care for many patients, community hospitals are often unable strictly to meet the criteria for neurosurgical coverage and have relied on a more empirical approach to the management of neurotrauma victims. This study was undertaken to test the hypothesis that such a practical approach will allow appropriate management of patients according to severity of their injury and lead to acceptable outcomes when compared to published standards of morbidity and mortality for victims of neurologic injury.

Methods: The records of 63 consecutive patients presenting with significant cranial (52) and spinal cord (11) trauma over a 42- month period were divided for review into two groups based on initial Glascow Coma Scale (GCS). All patients were initially evaluated and managed by general surgical residents and trauma attending physicians who then obtained neurosurgical consultation. Data collected for each patient included GCS, time (min) to computed tomographic (CT) scan, operating room (OR), or intensive care unit (ICU), and discharge condition.

Results: The overall study group represented 9.3% (63/676) of all trauma alert patients seen during the study period. The results are shown in the following table.

Thirteen patients required operative intervention and represented less than 2% of all trauma alert patients treated during this time. While a statistically significant difference between groups was observed only in time to CT, differences in time to the OR were clinically significant. This resulted in outcomes comparable to those reported from trauma centers for patients with severe neurologic injury (mortality, 26%-40%; morbidity 40%-90%).

Conclusions: The data support our hypothesis that initial evaluation and management of neurotrauma patients by trained general surgical personnel will lead to appropriate and prompt neurosurgical intervention. Outcomes are similar to morbidity and mortality results reported by Level I and II trauma centers. Individualization of guidelines for neurosurgical coverage for community hospitals seeking trauma center designation may allow more appropriate utilization of neurosurgical resources while maintaining satisfactory patient outcomes.

Group	GCS Range	GCS- (mean)	CT Time (mean)	Time to ICU (mean)	Time to OR (mean)	Mortality	Neuro Deficit
I (n=25)	3-8	5.1	37*	158**	87**	20%	55%
II (n=38)	9-15	13.9	85	188	151	0%	16%

(**P* = .0002; ***P* = 0.11, unpaired t test)

A Cognitive Screen for the Acute-Care Setting: A Preliminary Study

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Objective: Mild traumatic brain injury (MTBI) is a significant public health problem. Ideally, a neuropsychological evaluation (NPE) is used to identify these patients, but NPE is expensive, time consuming, and requires professional interpretation, limiting its availability in acute-care settings. Consequently, a cost-effective, user-friendly extension of the Mini Mental Status Examination was developed for the acute-hospital setting: acute-care cognitive screen (ACCS).

Methods: Sixteen patients (10 male, six female) referred to a Level I trauma center suffering traumatic loss of consciousness (LOC) from blunt trauma were administered the ACCS and NPE by a neuropsychologist. Patients (age range 16-81, M=34.4) had a normal head tomographic scan and one or more of the following: LOC <5 minutes, initial GCS 13-15, amnesia, confusion, or disorientation. Test results were reported as impaired or not impaired.

Results:

ACCS	NPE	No. of patients
Impaired	Impaired	15
Impaired	Not Impaired	0
Not Impaired	Impaired	1
Not Impaired	Not Impaired	0

These pilot data reflect a sensitivity of .937, with a confidence interval of .18-1.0.

Conclusion: Results of this pilot study suggest that the ACCS may be a valid and cost-effective means to identify patients with MTBI. In comparison to the NPE, the ACCS: 1) can be administered (after training) by various health professionals; 2) requires approximately 30 minutes; and 3) may reflect a cost savings of at least 60% of NPE. The availability of an efficient, reliable, and cost-effective screen increases the identification of MTBI patients and the need for comprehensive NPE and follow-up services. Further studies to establish the ACCS's reliability and validity are in progress.

Reducing Risk-Taking in the Young

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The adolescent represents a special challenge for trauma centers that design and implement injury prevention programs. The adolescents of today are exposed to vast information sources that have the potential to alter specific injury related behaviors. However, trauma statistics do not reflect such an effect.

Methods: At our institution, we have developed two injury prevention programs targeting the adolescent. The "Let's Not Meet By Accident" program attempts to reduce the incidence of risk-taking behaviors in the young driver. The second program, "Lives at Risk," concentrates on violence prevention. Both programs involve two-hour sessions of discussions, videos of 'teens who have sustained catastrophic injuries, and a direct hands-on experience in the trauma room. Because of the complex etiology of violence, "Lives at Risk" utilizes a teenage theatrical group who interact with the audience through role-play scenarios based on conflict resolution. A preprogram questionnaire is distributed to help to identify those at risk for injury. A postprogram evaluation form is distributed allowing us to measure the short-term benefit of the programs.

Results: Over a three-year period, 4,300 students have participated in this program. Demographic information has identified that our audience is multicultural, and based on gender, race, geography, and socioeconomic status, one could estimate those who are at risk for injury. The evaluation form showed that 95% of the participants felt the program achieved its goal as being effective and could alter behavior. Both programs have achieved local, regional, and national attention.

Conclusion: Our data have shown that our programs reach a diverse group of 'teens. The short-term benefit of effectiveness was demonstrated in 95% of the audience.

Cardiac Tamponade After Cardiac Surgery: Early Detection with Right Heart Ejection Fraction (REF) Catheters

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Cardiac tamponade after open-heart surgery requires prompt diagnosis and urgent correction. REF catheters are useful in making this difficult diagnosis.

Methods: REF catheters were used in 2,253 adult cardiac surgical patients during a two-year period. Hemodynamics were measured immediately postoperatively (I), prior to return to the operating room (II), and post-reoperation (III). Echocardiography was used prior to reoperation in stable patients.

Results: 109 patients were reexplored for bleeding; 10 of these patients had tamponade and REF data supporting this diagnosis. Eight of 10 patients had a decrease in MAP, six of 10 had a fall in cardiac index (CI), and seven of 10 had a fall in both stroke volume (SV) and end diastolic volume index (EDVI); EF was constant.

	MAP	CI	SV	EDVI
I	80.1	2.4	4.8	93
II	76.2	2.1*	34*	76
III	82.8	2.4	45	102

*$P<.05$ ANOVA

Echocardiography in five patients confirmed tamponade in one, was equivocal in three, and negative in one.

Conclusion: Cardiac tamponade after open-heart surgery can be diagnosed in a timely way with REF catheters. This approach may be more rapid and more accurate than echocardiography.

Alzheimer's Disease and Related Dementias: Legal Issues in Care and Treatment, 1994

The Advisory Panel on Alzheimer's Disease issued this **special report to Congress** to focus attention on legal issues affecting people with Alzheimer's disease, their families, health care professionals, and society. This report contains public policy recommendations for resolving problems in legal competency judgments in cases of probable Alzheimer's disease and other related dementias.

Alzheimer's Disease and Related Dementias: Legal Issues in Care and Treatment, 1994, describes the following areas of law as they affect people with Alzheimer's disease and their families.

- autonomy and incapacity.
- voluntary transfers of decisionmaking (durable powers of attorney and trusts).
- involuntary transfers of decisionmaking (guardianships and conservatorships).
- medical decisionmaking (advance directives and refusals of medical treatment).
- the ethics of treating in the absence of advance directives.
- Federal involvement in medical decisionmaking.

Single copies of this report (publication no. Z-86) are available **free** from the Alzheimer's Disease Education and Referral (ADEAR) Center by calling toll-free: **800-438-4380**.

The Use of Zidovudine to Prevent Perinatal Transmission of HIV

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PERINATAL transmission of the human immunodeficiency virus (HIV) occurs in approximately 1,000 to 2,000 out of 7,000 children born to HIV-infected mothers.[1] This equates to virus transmission of 1.7 per every 1,000 live births in the United States.[2] As the number of HIV-infected women of childbearing potential continues to increase, it has been predicted HIV-related complications could soon become the leading cause of death among children.[3]

Acquired Immunodeficiency Syndrome Clinical Trials Group (ACTG) Protocol 076

Recently, the National Institute of Child Health and Human Development announced the results of the ACTG Protocol 076, a multicenter, randomized, double-blind, placebo-controlled clinical trial designed to examine the effect of zidovudine (ZDV) on the incidence of perinatal HIV transmission.[4] Women were eligible for participation in the study if they were HIV-infected, pregnant (week 14 to 34 of gestation), received no prior antiviral therapy during the current pregnancy, had no clinical indications for antepartum antiretroviral therapy, and had a CD^4 T-lymphocyte count of ≥200 cells/mL at the time of study entry. Once enrolled, women were randomized to receive either a regimen of ZDV (Table 1) or placebo. Antepartum therapy consisted of oral ZDV, 100 mg five times daily, initiated at 14 to 34 weeks of gestation and continued throughout the pregnancy. During labor, ZDV was administered intravenously as a one-hour loading dose of 2 mg/kg, followed by 1 mg/kg/hour administered as a continuous infusion until delivery. Postpartum, the infant received oral ZDV syrup, 2 mg/kg every six hours, for six weeks. Blood specimens for HIV culture were obtained from all infants at birth and at 12, 24, and 78 weeks of age. Samples of sera were also collected at 15 and 18 months for HIV antibody testing.

Interim analysis was conducted approximately 18 months after the initiation of the study. During this time period, 477 women had been enrolled and 421 live births had been recorded, of which 180 and 184 infants received ZDV and placebo, respectively. The rate of HIV transmission for ZDV-treated infants was reported to be 8.3% (95% confidence interval [CI] = 3.9%-12.8%). In contrast, the estimated viral transmission among placebo-treated infants was 25.5% (95% CI = 18.4%-32.5%, $P < 0.05$). Minimal toxicity was observed during the trial for both mothers and infants. As a result of the significant decrease in the rate of viral transmission noted for infants treated with ZDV, the trial was closed following interim analysis and all participants were offered ZDV therapy.

Adverse Events Related to Therapy

ZDV readily crosses the placenta and enters the fetal circulation, rapidly reaching concentrations comparable to maternal blood levels.[5] As a result, concern regarding possible teratogenic effects has been expressed. The results from ACTG 076 did not identify any significant differences in birth parameters such as gestational age,

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Table 1.—ZDV Regimen from ACTG Protocol 076

Maternal Dosing

- Oral ZDV, 100 mg administered five times daily, initiated at 14 to 34 weeks of gestation and continued throughout pregnancy.
- During labor, intravenous ZDV administered as a 2 mg/kg loading dose infused over one hour, followed by a 1 mg/kg/hr continuous infusion until delivery.

Newborn Dosing

- ZDV oral syrup at a dose of 2 mg/kg per dose given every six hours for six weeks, beginning 8-12 hours after birth.

birth weight, length, and head circumference between infants born to mothers treated with ZDV and those who had received placebo. Congenital abnormalities observed in the two infant groups were also similar. Additionally, few serious adverse drug-related events were noted among ZDV-treated infants. Mild anemia was the only adverse event that was observed more frequently in the treatment group. Anemia resolved upon completion of ZDV therapy without intervention.

Additional information regarding the use of ZDV during pregnancy was reported by Kumar and colleagues.[6] These investigators followed 104 infants who were born to mothers who had either intentionally or inadvertently taken ZDV during the course of their pregnancy. Sixty-five women had received ZDV during the first trimester of their pregnancy. Of these cases, four birth defects were reported. Abnormalities included low-set ears, retrognathia, prominent epicanthal folds, triangular facies with blue sclera, hyperpigmented skin macules, and extra digits on appendages. In this group of 65 women, eight induced and eight spontaneous abortions were reported. Healthy infants were delivered in the remaining 45 cases. Only six women received ZDV during the second trimester. Of the six infants born, one was reported to have congenital defects. Finally, 33 women took ZDV during their third trimester, resulting in 30 normal births and three infants with birth defects. The authors reported that the rates of defects observed were similar to those observed for this patient population who were not administered ZDV. Caution was expressed concerning the use of ZDV during the first trimester of pregnancy.

Limitations of ACTG 076

ACTG 076 demonstrated that ZDV when used antepartum, intrapartum, and postpartum is effective in reducing the rate of HIV transmission from mother to infant; however, this protocol included a very specific population. Participants in the trial were in the early stages of their diseases, $CD^4 \geq 200$ cells/μl; therefore, maternal viral load was most likely low. Additionally, the majority of women had not received prior antiviral therapy and none of the subjects had been exposed to antiretrovirals during their pregnancy. It has been demonstrated that HIV mutates rapidly upon exposure to antivirals including ZDV. The efficacy of the studied regimen in the presence of advanced disease or prior antiviral therapy is unknown. Furthermore, participants in the study were between 14 and 34 weeks of gestation, thus providing no information regarding the effectiveness of ZDV initiated after the 34th week of gestation and the effect of ZDV exposure on the fetus if therapy is begun prior to the 14th week of pregnancy.

Since ZDV was administered antepartum, during labor, and to infants postpartum to all subjects randomized to ZDV therapy, the contribution of treatment during each of the time periods cannot be differentiated. Further studies

Table 2.—Guidelines for the Clinical Use of ZDV to Prevent Perinatal Transmission of HIV[7]

ZDV therapy should be considered for:

- All pregnant women infected with HIV regardless of CD^4 count or history of prior ZDV use. Complete protocol should be considered.
- Pregnant women infected with HIV who are past the 14th week of gestation. Complete protocol should be considered.
- Pregnant women presenting in labor who are identified as being HIV positive who have not received prior ZDV treatment. Consider intravenous ZDV therapy for the mother and oral therapy for the newborn.

Patients should always be evaluated on a case-by-case basis to assess the risks and benefits of treatment. Some intances where the risk of treatment with ZDV may outweight the benefits include patients with serum creatinine > 2 mg/dL, hemoglobin < 8 g/dL, absolute neutrophil count < 1,000 cells/mm,^{3} platelet count < 100,000 cells/mm,^{3} and serum alanine aminotrasferase concentrations > 2.5 times the upper limit of normal.

examining the effect of antiviral therapy at the various stages of pregnancy and delivery will help identify the critical time for viral transmission. By determining the critical period, drug therapy can be optimized and exposure of the mother and infant to ZDV can be minimized. However, until the critical period(s) can be identified, treatment should follow the ACTG 076 protocol as closely as possible.

Recommendations for the Use of ZDV During Pregnancy

Despite the limitations noted for the ACTG 076 trial, the option of ZDV therapy for all pregnant women infected with HIV should be considered. Although this trial was conducted in a controlled population, the success noted for the ZDV regimen makes a strong argument for extrapolation to cases which fall outside the inclusion criteria of the study. Therefore, it is recommended that ZDV therapy be considered for all pregnant women infected with HIV regardless of CD^4+ count, duration of gestation, and history of antiviral use. Additionally, we recommend that women who present to the hospital in labor and are subsequently identified as being HIV positive should be offered intravenous ZDV therapy during labor regardless of previous antiviral usage. Newborns of women infected with HIV who have not received prior antiviral therapy should also be considered as candidates for ZDV therapy. Guidelines for ZDV usage during and postpregnancy are summarized in Table 2.

Conclusion

Perinatal transmission is the primary route of infection of children with HIV. Untreated, the rate of viral transmission may be as high as 30%. The ACTG 076 trial demonstrated that ZDV therapy antepartum, intrapartum, and postpartum can reduce viral transmission by more than two-thirds. Although not 100% effective, treatment with ZDV will help decrease HIV infection of children.

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CAVEAT!

Once again physicians in our state are receiving mail solicitations to join one or another specialty subsidiary of the "Healthcare Networks of America, Inc. If the doctor responds to the 800-number, a brief one-page application follows to be returned with a $250 "reservation fee." If accepted, a $950 "annual fee" comes due. Somehow, they are willing to handle all this instantly via fax if the application includes the doctor's credit care number and expiration date.

AMA attorneys have advised that physicians be cautious about HNA: "It is not clear that HNA has a long-term track record in this area. Physicians with questions should contact their attorneys or Michael Ile, J.D., in the AMA Health Law Division, (312) 464-5532.

Another questionable solicitation that has surfaced this spring comes from National Health Care, Inc., operating out of a post office box in New York state. Physicians are offered a share of 25% of NHCIs net quarterly profits in return for a 20% discount off their fee schedules. Annual membership is a mere $175, and "15-mile radius exclusivity" is available as well. The Medical Society of the State of New York has no information on whether NHCIs "Medical Director," who signs the letter, is even a physician licensed in the state.

(CAVEAT 2 on page 379)

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Diphtheria Acquired by U.S. Citizens in the Russian Federation and Ukraine—1994

EPIDEMIC diphtheria has reemerged in 14 of the 15 New Independent States (NIS) of the former Soviet Union;[1] during 1994, a provisional total of 47,802 cases and 1,746 deaths from diphtheria were reported throughout the NIS. This report describes one confirmed and one probable case of diphtheria acquired in countries where the disease is epidemic (Russian Federation and Ukraine) by U.S. citizens during November and December 1994.

Patient 1.—A 42-year-old woman, born in Russia but living in the United States for several years, arrived in Moscow on 22 November. She had onset of fever and sore throat on 6 December and was hospitalized on 7 December with a provisional diagnosis of diphtheria. Her vaccination history was unknown, and she was not aware of contact with diphtheria patients or carriers. She was treated with 9,000 international units (IU) of equine diphtheria antitoxin, antibiotics, and prednisone. On 8 December, she was transferred to a referral hospital in Helsinki; findings on examination included a pharyngeal membrane. Treatment included administration of 40,000 IU of antitoxin, penicillin G (for six days), and several days of roxithromycin. Toxigenic *C. diphtheriae,* biotype *gravis,* was isolated from a pharyngeal culture obtained 9 December. Follow-up cultures on 12 and 15 December were negative. Her antitoxin level was measured in Helsinki by Vero cell neutralization assay and was >5 IU/mL; however, the level measured by an enzyme immunoassay that is specific for human antibodies was <0.03 IU/mL, indicating that the Vero cell assay was detecting recently administered equine antitoxin. She recovered fully without complications.

Patient 2.—On 28 November, a 22-year-old woman from New Jersey working in Kherson in southern Ukraine since June 1994 had onset of a sore throat; she was hospitalized on 29 November with a provisional diagnosis of diphtheria. She had received five doses of diphtheria and tetanus toxoids and pertussis vaccine (DTP) during childhood and an adult formulation tetanus and diphtheria toxoids (Td) booster in August 1991. She had no recognized contact with a known diphtheria patient or carrier. Findings on examination included a tonsillar and posterior pharyngeal membrane. The patient had treated herself with ciprofloxacin for one day and had had at least one dose of oral penicillin before a throat culture was obtained (the culture was negative). Treatment comprised 80.000 IU of diphtheria antitoxin and a course of parenteral penicillin. A diphtheria antitoxin level of 0.2 IU/mL by Vero cell neutralization assay was detected in both a blood specimen obtained at the time of her arrival in Ukraine in June 1994 and a convalescent sample. She recovered fully without complications.

Reported by: J. Vuopio-Varkila, M.D., R.-M. Olander, M.Sc., National Public Health Institute; V. Valtonen, M.D., Helsinki University Central Hospital, Helsinki, Finland. R. Crooks, M.D., C. Stewart, Office of Medical Services, Peace Corps, Washington, DC. Childhood and Respiratory Diseases Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases; Child Vaccine Preventable Diseases Branch, Division of Epidemiology and Surveillance, National Immunization Program, CDC.

Editorial Note: Diphtheria is a potentially severe illness; among persons who are unvaccinated, the case-fatality rate ranges from 5% to 10%. The disease is rare in the United States: since 1980, five or fewer cases have been reported each year, and since 1988, all reported culture-confirmed cases have been imported. However, based on serologic studies, 20%-60% of U.S. adults aged >20 years are susceptible to diphtheria.[2,3] The two cases described in this report are the first known to have occurred among U.S. citizens from exposure during the current epidemic in the NIS and emphasize the risk for persons who travel to countries with epidemic diphtheria. In addition, these cases suggest the potential for importation of toxigenic strains of *C. diphtheriae* to the United States by persons who arrive from affected areas. Although importation of diphtheria from the NIS to the

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United States has not been reported, at least 20 imported cases related to this epidemic have been reported in European countries.[4-6]

The diagnosis of diphtheria was confirmed by culture in the first case in this report. Although diphtheria was not laboratory-confirmed in the second patient, the clinical diagnosis was made by physicians experienced in diagnosing and treating diphtheria, and the CDC case definition for a probable case was met.[7] Her negative throat culture does not exclude the diagnosis because she had begun antibiotic therapy before the culture specimen was taken. In addition, levels of antitoxin ≥0.1 IU, as those present in this patient, are considered to confer a relative degree of protection against disease;[8] although no level of antitoxin provides absolute protection,[8] this patient appeared to have relatively mild disease and did not develop toxic complications. Because clinical diphtheria may not induce protective immunity, the lack of an increase in postdisease antitoxin level would not exclude the diagnosis; booster vaccination with an age-appropriate diphtheria toxoid-containing vaccine is recommended during convalescence.[8]

To minimize the risk for diphtheria, all U.S. residents should be up-to-date for diphtheria vaccination, regardless of whether they plan international travel. The Advisory Committee on Immunization Practices recommends that all children receive a routine series of five doses of DTP (or diphtheria and tetanus toxoids for pediatric use [DT] if pertussis vaccine is contraindicated) with doses at ages two, four, six, and 12-15 months, and four to six years; Td boosters should be given at age 11-16 years, and every 10 years thereafter.[9,10] For persons aged 27 years who have not been previously vaccinated against diphtheria, the primary series consists of three doses of Td, with intervals of one to two months between the first two doses and six to 12 months between the second and third doses; Td boosters should be given every 10 years thereafter. To improve diphtheria-specific levels of immunity within the population, active vaccination against tetanus given as part of wound management should involve use of a vaccine containing both diphtheria and tetanus toxoids rather than single antigen tetanus toxoid (ie, DTP [or DT if pertussis vaccine is contraindicated] for children aged <7 years and Td for persons aged ≥7 years). Travelers to areas with endemic diphtheria or outbreaks should consult their medical providers to ensure they are adequately vaccinated. Travelers should have completed a primary series of at least three doses of diphtheria toxoid and should have received the most recent dose of vaccine (either primary series or booster) within the previous 10 years. In addition, travelers to affected countries should be advised to contact a health-care provider promptly if they develop a sore throat during either travel or the two-week period after return from travel.

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30 Ways to Make Your Practice More 'Patient Friendly'

SUSAN KEANE BAKER

THERE are many quick and easy ways to make your practice more "patient friendly." As you read this list, circle the five ideas that make the most sense for you—and implement them today!

1. People like people who speak first. Don't wait for your patient to introduce himself—take the initiative.

2. For first-time patients, see the patient before beginning any testing or treatment.

3. Try to speak with your patient on the same physical level. In hospitals, two minutes sitting by the bed is worth more to the patient than 10 minutes standing in the doorway.

4. Use words that are familiar and comfortable for the patient. If your patient uses "terrific," let your statement be "I think you are doing a terrific job with your diet — you must be proud of yourself."

5. Don't assume that your patient understands even the most basic medical terminology. Yes, everyone is watching "Chicago Hope" and "ER," but they don't watch television with a medical dictionary in hand. Keep this in mind even when caring for patients employed in the medical profession. One office nurse, new to a pediatric practice, told me that on her first day, she thought that the bilirubin results were for a patient named Billy Rubin.

6. Keep notes on your patients' individual preferences —early morning appointments, for example. Customers value relationships where their individual preferences are acknowledged.

7. Address all adult patients by their last names, unless they request that you use their first names. This is particularly pertinent for older patients.

8. Give written information for even the simplest advice. The AMA has said that this is a major patient satisfier —and it means fewer questions later.

9. Everyone in the practice should review the appointment schedule at the beginning of the day. A patient can then be greeted by name.

10. Instead of asking "Do you have any questions?" try "What questions can I answer for you?"

11. Try to mirror the patient's pace and tone of voice, except when the patient is angry or afraid.

12. Patients see and feel the practice's atmosphere. So make positive statements and recognition of customer service part of your organizational culture. Tom Peters, author and lecturer on excellence in business, recommends that dozens of opportunities be provided to inform staff about customer service. They should "bump into" patient-satisfaction information all the time—not just once or twice. Rent the film "The Doctor" and watch it with your staff. Cut customer-satisfaction articles out of magazines. Order customer-satisfaction books for the office. Applaud staff who follow these tips.

13. Remember the power of appropriate touch. Offering to hold a patient's hand or patting a patient's arm during an uncomfortable procedure is long remembered by patients.

14. Recognize significant events in your patient's life. If you see a news article or wedding announcement, for example, clip it out and send it with a quick note.

15. Be clear about what will happen next. "Your test results will be back in about a week" leaves your patient wondering "Will the doctor call me, or am I supposed to call her?" Be specific about what you will do after the visit and what your patient will do.

SUSAN KEANE BAKER, AMA News Contributor; principal of Malpractice Prevention Seminars, New Canaan, Conn. She speaks on strategies to improve patient satisfaction, prevent patient injury, and minimize your risk of malpractice litigation. Reprinted with permission from *American Medical News*, 8 May 1995, p. 13.

16. Consider presurgical and follow-up telephone calls. The surgeon who calls the night before surgery and says, "I've been thinking about you today and wonder if you have any questions about tomorrow," is a special person.

17. Everyone likes to be right. See if you can use the phrase, "You're right," once during each patient visit. It can be as simple as "You're right, Mrs. Jones, it is a beautiful day."

18. Smile! Make your patient feel that you are happy to see him. Greet him with the same smile you would use to greet a guest to your home.

19. Respond as quickly as possible to patient requests. Quick response differentiates you from all other physicians providing the same service you do, and it will make your patient feel important.

20. Let patients see that you are taking precautions for their benefit. Instead of walking into the examining room wearing gloves, let your patient see you putting gloves on.

21. To achieve a trusting relationship, your patient has to know that confidentiality will be respected by you and your staff. Make confidentiality an obsession and find ways to communicate your values to your patients.

22. Would you like to have you for a health-care provider? Why or why not? Start doing more of the why things and less of the why nots.

23. Patients want to feel that their health-care providers spend enough time with them. You can create the impression that a meaningful amount of time was spent by giving undivided attention to your patient the first 60 seconds of your encounter. Try it— it's not as easy as it sounds.

24. Just say yes.

25. Think about how you felt on your first day of practice and let your patients see your enthusiasm. People love people who love what they do.

26. Whenever possible, let telephone callers hang up first.

27. Think about what you can do for your patient and let your patient know. "We'll use this examining room today—it's warmer than the others."

28. Consider the group you most like to do with business with—why? Can you duplicate the experience?

29. Before beginning a procedure with a patient, ask, "Is there anything I can do to make you more comfortable before we begin?"

30. Shep Hyken, author of *Moments of Magic: Be A Star With Your Customers & Keep Them Forever,* says, "Going the extra mile does not necessarily mean a lot of extra effort. It just requires caring and thinking about the needs of your customer."

Time constraints prevent most people from paying attention to the simple things that make a difference. Challenge yourself to be extraordinary!

Call for Papers!

"Uncertain Times: Preventing Illness, Promoting Wellness" is the theme for the 1996 International Conference on Physician Health to be held 7-10 February 1996, at the Sheraton San Marcos Hotel in Chandler, Arizona. Presentations dealing with any aspect of physician health, including issues of well-being, impairment, disability, treatment, and education are welcome. Of particular interest are:

Stress and physician health;
Epidemiologic data;
The effects of violence directed at physicians;
Violence occurring within physicians' families;
Patient exploitation; mental illness, including substance abuse;
Physical illness and disability; special populations;
Comparative data across states or countries;
Physician well-being and family functioning.

For more information or to request an abstract submission form,
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Physicians' Retirement

HARVEY MANDELL, M.D., *Retired.*

ABSTRACT—There are few guidelines available for physicians approaching retirement. Since many physicians do not enjoy their years after practice, guidelines for making this time of life enriching and a period of intellectual growth can be helpful.

As my birthdays approached 70, the age long set for retirement, I asked a number of retired physicians if they were enjoying their days and if they had found useful guidelines to help them make these big changes in their lives. After all, if clinical guidelines have invaded medical practice, should there not be post-career guidelines as well? It was dismaying to learn that a number of interviewed physicians found retirement boring and a major mistake. Others seemed to be thriving. The spectrum was wide.

Retirement is more than the flotsam and jetsam of life's work. That stage of life need not be spent sweeping away the detritus of a career. As imperial a master as medicine may be, we physicians can still find an enjoyable and less parochial world after the comfort of our profession.

Many of us are poorly prepared to leave the work we love, treating sick people, or performing the myriad tasks managing patient care. Medical school curriculums are already too full to try to engage students in thoughts about the end of their careers. The beginning of their careers is too exciting to allow them a forty-year glimpse into the future. Interns, residents, and fellows have too much to absorb to permit more than a minimum of contemplation. The near and intermediate term years demand of physicians so much attention to providing the best care they can give, that there can be little of the luxury of future planning to occupy much of a mind already reeling with new knowledge and often damped by insufficient sleep. The few hours stolen from work must be dedicated to growing families, financial concerns, and, one hopes, maturation of personality. Since there are no fellowships for retirement, physicians should set aside enough time to think about it and plan sensibly for it. If you postpone your planning to a certain age, you may find the time allotted suddenly shortened by an unexpected stroke or invading carcinoma.

Medical careers are all consuming. The everyday challenges, the material to be mastered, the pleasure of success, and the dismay of failure are enough to keep most of us committed. Programs for the humanities in medicine like Howard Spiro's at Yale are brilliant in conception and execution. They attempt to give us a broader picture of the world about us and its relation to medicine. Devoted attendees can learn to find connections of medicine with a variety of activities—literature, music, philosophy, science, art, and more. Sadly, the students and house staff who would find their worlds so broadened too often have so many tasks that even with the best of intentions they rarely attend.

It is a rare physician who prepares in any meaningful way for retirement. Too often, retirement is an abrupt end of one career and the onset of another kind of life which arrives with little welcome and less planning. Despite current claims of physicians so harried by increasingly onerous paperwork and external meddling that they can't wait to leave medicine, I see no wholesale departure from practice. Some physicians may even stay on longer than

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HARVEY MANDELL, M.D., formerly vice president for medical affairs, Wm. W. Backus Hospital, Norwich.

they should, even though attempts at keeping up with the literature begin to slacken and memory lapse and visual loss affect their work.

A man or woman who bakes bread for a living, who sells insurance, or who polishes brass can still do the job well despite the mild intention tremor sometimes accompanying old age, but a pediatrician with the same problem is unlikely to do a good job intubating newborns. A minor memory lapse in an economist might cause a minor embarrassment, but abdominal surgeons must never forget where they are once the trocar preceding the laparoscope has pierced the peritoneum. The stakes are higher when physicians can no longer do their best, since less than that is neither good for patients nor satisfying for physicians.

Few physicians practicing in the last quarter of the 20th century should have financial problems during retirement unless they have squandered their money, been involved in expensive divorces, or participated in unsound investments. Promoters of peculiar financial risks, like derivatives and real estate limited partnerships, say doctors are among their best customers because they so often compound financial naïveté with large amounts of available cash—a tempting combination. Considering the number of physicians who subscribe to *The Wall Street Journal* it is surprising how many physicians have been misled by less than disinterested financial advisors.

Financial planning for retirement should not be difficult for people with the incomes of most physicians that permit reasonable saving and investment. The best advice is often in the financial pages of the *New York Times* and *The Wall Street Journal.* The ubiquitous seminars for retirement planning are too often slick presentations by affable and lively folk who want to sell you something. Think a long time before you sign on with any of them.

Preparation for maintaining good health requires some planning too. Many physicians get their health care by stopping colleagues in the hospital corridors and asking for advice, usually freely given without prolonged thought or a physical examination. Physicians who do have personal physicians may have chosen them from among friends who themselves are now likely to be at retirement age. It is wise to align yourself with a doctor somewhat younger than yourself, make an appointment to see him or her in the office, just like the rest of the regular world. Then let the new primary-care physician guide the now new physician-patient through the maze of specialists and superspecialists when required, or permitted, by managed care.

Lucky is the retired physician who has absorbing hobbies of a lifetime, particularly those not requiring large sums of money unsustainable with a reduced income. While ski jumping may not always be feasible in septuagenarians, less strenuous skiing, tennis, golf, and other athletic pursuits can often be enjoyable long into later life. Physicians who have wondered whether they could be competitive bridge players if only there was enough time left over from patient care, or chess players longing to raise their ratings, now can try again to learn enough about the games to improve. If they don't quite make it to the next higher plateau of excellence, it is no great loss to the world or to the disappointed retired physician. Many recently retired doctors love to spend hours at their computers, pulling information from the new networks and communicating with new friends all over the world. Be warned though that this can become addictive. Travel, bird watching, cooking—the lists of hobbies are without number.

Just as your financial planning for retirement must include prospects for growth alongside income, your intellectual side must not stop growing even though professional journals may have less immediacy for you. Marvel at the opportunities ahead: instead of learning the drug-drug interactions and side effects of the newest fourth-generation cephalosporin, you can now learn a foreign language, read or reread great books, immerse yourself in history. With instruction and patience, the most illiterate of computer novices can become part of the vast growing information world networks. A rather dour retired physician I know is now part of a network forum of joke tellers who exchange amusements with each other for hours on end. He is a great fellow in general, but I had never heard him tell a joke in the 20 years I knew him as an excellent physician.

If you begin to learn something and don't quite get it all, just say "so what?" and keep going. You are not being graded and no one will send a note home to your mother if you can't conjugate French verbs. But what joy if you ever order something in French in a Paris bistro and the waiter brings you what you think you ordered. If he cannot understand your French and brings you something else, you can just smile, say "Merci" and start eating, even if it is tripe.

Most people who go on Elderhostel love the programs. They say the courses vary in quality but again, if you don't learn everything, "so what?" You have at least traveled somewhere new, made some new friends, and kindled an interest in a new subject. However you do it, never stop learning if you plan to enjoy retirement. Don't let yourself sink into the torpor of daytime television. Try to keep your brain cells and striated muscle cells moving at all times.

Shedding demanding clinical or related duties gives many retired physicians the chance to participate in community volunteer organizations. These activities may be oriented to medicine or have no connection at all. If you choose a medically related group, don't fear that you might not be useful because you have passed your peak as a practicing physician. Remember that much of the rest of the world, and some places very close to home, are getting little or no care. Even at your less than best, you can provide better service than they ordinarily get.

Be prepared for major differences among volunteer organizations. Some turn out to be nothing more than fund raising schemes for themselves. If the chief operating officer flies the Concorde to Paris for supposed business meetings, you should be less willing to offer your services. Some of these organizations are worthy, but are run by amateurs. Be prepared sometimes for your inquiries and phone calls to go unanswered. Nonetheless there are dozens of useful groups in every community who can use your services either as a physician or a citizen willing to help. Since you know which good physicians are good speakers, you might want to arrange programs for the local senior center. If your health is good and you don't mind third-world living standards, you can be useful all over the world.

Don't expect, because you have been a good doctor, or you have been the first this or first that in your hospital, or have never been criticized by the utilization review committee or the quality assurance board, that you will be long remembered or showered with eternal praise. The hospital or old group will very likely prosper and progress without you. Within a few weeks there will be new physicians on the staff who will never even have heard of you and show little curiosity about historical persons.

The years following active work should be approached carefully with thought and planning. Find the time that is right for you and plan for it in a way that avoids letdown, boredom, and the depressing feeling of uselessness. See to it that your decision is the correct one.

Retirement should become neither a metaphor nor an apology for idleness: rather see that it follows T.S.Eliot's "To make an end is to make a beginning. The end is where we start from."[1]

REFERENCE

1. Eliot TS: *East Coker in the Four Quartets.*

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HISTORY OF MEDICINE

James Lind's Legacy to Clinical Medicine

SHERMAN M. MELLINKOFF, M.D., *Los Angeles, California*

Based on a talk given in acceptance of the 1994 Golden Apple Award, presented by the California Medical Association to recognize exceptional physicians who have made a lifelong commitment to teaching.

An 18th-century exemplar of an astute clinician was James Lind of Edinburgh, Scotland. Long before the discovery of malarial parasites, Dr. Lind questioned sailors about where they had traveled before their shaking chills began. He wisely advised them to go ashore in the tropics only in the daytime and to sleep offshore aboard ship. Most ships would have been anchored beyond the range of mosquitoes likely to forage for blood at night. James Lind also invented a simple portable still to desalinate seawater and made numerous other contributions to the health of seafarers. His greatest discovery was a sure cure and preventive for scurvy, an ancient curse.

Because the word "scurvy" was never used until the Middle Ages—and then often inaccurately—how do we know that it was a problem in antiquity? We find the disease's distinctive features described in the Ebers Papyrus about 1700 BC; in texts of Susruta, the great Indian surgeon, about 400 BC; in the writings of Hippocrates; in accounts of Pliny the Elder, a first-century Roman; and in the works of Chang Chi, known as "the Galen of China," about 200 AD. The sketchy vignettes of those ancient physicians signify scurvy to us only because of much later and much more detailed descriptions—none more vivid than James Lind's.

Drawing on his own careful histories and physical examinations, he described scurvy as follows:

> In the early stages, patients do not look very sick, but are listless, perhaps a little pale, and have an aversion to exercise. They still eat well, but in a few days develop universal lassitude, stiffness, and feebleness of the knees, some difficulty breathing, itchy gums, and rough, dry skin splattered with bluish and reddish spots. These hemorrhages vary from the size of a lentil to a handsbreadth, mostly on the legs, less on the arms and trunk, and rarely on the head or face. The gums, however, bleed readily and become first soft and spongy and then putrid and rotten. The breath is foul, and the teeth fall out. The legs swell, at first only in the evening, but later all the time. Ulcers appear on the thighs, coated with blood and gore, and will not heal. Broken bones will not mend and even old, healed wounds may break apart. The patients are now susceptible to whatever infection is going around, often diarrhea. Many joints, but especially the knees, are very painful and greatly swollen with blood. Patients now have abdominal pain, cannot eat, are jaundiced and swollen all over, breathe with pain and labor, and may die suddenly.

"It is not easy," Dr. Lind wrote, "to conceive a more dismal and diversified scene of misery."

Scurvy occurred on land, usually in sieges, as is well described in accounts of the fifth and seventh Crusades, but it became known as "the calamity of sailors" with the introduction of long voyages, beginning in 1492. Between 1500 and 1800, more seamen died of scurvy than of all other causes combined, including other diseases, shipwreck, accident, and battle.

Vasco da Gama's voyage to the East Indies around the Cape of Good Hope brought death from scurvy to 100 of his 160 sailors. Sir Richard Hawkins of the British Navy said that in his 20 years at sea in the early 17th century, he personally saw about 10,000 mariners perish from scurvy.

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From the Department of Medicine, University of California, Los Angeles, School of Medicine. Reprint requests to Sherman M. Mellinkoff, MD, Center for the Health Sciences, 120833 Le Conte Ave, Los Angeles, CA 90024-1736.

Through all these vicissitudes, there were as many theories about the causes of scurvy as there were physicians and explorers reporting them: dampness, bad air, poor attitudes, too much blood, constipation, and poor diet.

Scurvy was endemic in cold parts of the world. In one astonishing account, some Norsemen, hard-pressed on a voyage in their long ships, abandoned a shipmate thought to be dying of scurvy on the coast of Greenland. He was unable to walk because of painfully swollen knees. Crawling, he grazed on grass and fully recovered.

Jacques Cartier, the great French sea captain, in 1536 was almost compelled by an outbreak of scurvy to turn back from his famous exploration of the St. Lawrence River. He heard, however, that Indians treated this disease with a kind of tea made with the leaves of the "Ameda tree," which was probably spruce. Cartier treated his sailors with the Indian remedy and wrote, "If all the physicians of Louvain and Montpellier had been there with all the drugs of Alexandria, they could not have done as much in a year as that tree did in six days."

In the following century, Captain James Lancaster of the English East India Company set out for India with four ships. One ship was provisioned with lemon juice in bottles because sailors long at sea often had a craving for fresh vegetables and fruits. On the three ships not supplied with lemon juice, 105 of 310 sailors died of scurvy, but none on the ship with lemon juice. Neither Captain Lancaster, who was not a doctor, nor the most eminent physicians of the 17th century and even later concluded that lemon juice would prevent scurvy. Many conflicting accounts of what did or did not cure scurvy or prevent it, and many traditional and mistaken theories about the origin of diseases in general—and scurvy in particular—prevented even highly intelligent mariners and physicians from seeing the effects of lemon juice clearly.

As Josh Billings, the 19th-century humorist, observed, "It ain't so much what we don't know that holds us back; it's more what we do know that ain't so."

Among the most learned physicians of those days who made important medical discoveries, Hermann Boerhaave of Leyden, Thomas Willis of Oxford, and Thomas Sydenham of London thought fresh fruits sometimes failed to prevent scurvy. The disease was thought to be due to undiscovered disturbances in the body and vagaries of climate, moisture, cleanliness, infections, or constipation and possibly transmitted by kissing.

Captain James Cook on the first of his famous voyages between 1768 and 1771, exploring New Zealand and Australia, lost a third of his crew to scurvy. On his second voyage, from 1772 to 1775, Cook took great pains to avoid for his seamen various things he had observed to be associated with outbreaks of scurvy. He insisted on cleaner, better ventilated quarters and ample freshwater for personal hygiene for all his men, as well as for the officers. Whenever possible he would take on supplies of whatever fresh fruits, vegetables, and malt were available at ports of call. Cook also noted that scurvy seemed to afflict Dutch sailors less severely than it did the English and concluded that sauerkraut might be a factor. The Dutch were fond of sauerkraut, whereas the English disliked it and ridiculed those who ate it regularly by referring to these wartime enemies as "Krauts." Cook therefore took plenty of sauerkraut aboard, but did not compel his sailors to eat it. He did order his officers to join him in eating sauerkraut daily, encouraging the rest of the crew to follow the officers' example, if they wished to do so. Within a week, every man on the ship was asking for sauerkraut. On that long second voyage, Cook lost only one of 118 men to scurvy. He was invited to address the Royal Society of London and was awarded its prestigious Copley Medal—not for preventing scurvy, but rather for his explorations and geographical discoveries. In his address, Cook described all his attentions to the health of his men and expressed the view that even without sauerkraut and fresh fruit, scurvy would have been prevented by cleanliness and fresh water.

James Lind was apprenticed to a physician in Edinburgh at the age of 15 and at 23 joined the British Navy as a ship's surgeon. At the age of 31, having sailed as far as the West Indies, he was convinced from wide reading and mainly astute observation that scurvy had many predisposing causes—among them moist air, weakening by preceding illness such as "gaol fever" (probably a form of typhus), a melancholy disposition, and the hardships of a cold climate. He concluded, however, that there is "an additional and extremely powerful cause . . . which in progress of time . . . seldom fails to breed it.... This [cause] is the want of fresh vegetables and greens and ripe fruits." In May of 1747 at sea, he had 12 patients with early signs of scurvy, all of them eating the same regular navy diet, mainly salt pork, biscuits, and a little rum. Two of the 12 sailors he gave, in addition to the regular diet, a quart of apple cider daily. These two were considerably improved after 20 days. Two others he gave 25 drops of vitriol (a kind of metallic mouth wash) three times a day. Their mouths looked a little better, but otherwise there was no improvement. Two others showed no improvement with two teaspoonfuls of vinegar three times a day. Two drank a half pint of seawater daily with no improvement. Two were not improved by small daily doses of nutmeg, garlic, barley water, and tamarind—all prescribed by various physicians for the scurvy. Two of the 12 patients were given two oranges and a lemon daily, and in six days both of them were completely cured.

Lind had conducted the first scientific, controlled experiment in the history of clinical medicine. The results were conclusive, but despite repeated attempts to influence the British Admiralty, he convinced almost no one in the tradition-bound, opinionated network that so many bureaucracies tend to become. Years went by with no action. Lind left the Navy and returned to Edinburgh where he earned his medical degree, in part through the publication of his "Treatise of the Scurvy" in 1753. In this dossier he reviewed the world's literature on the subject and reported the experiments he had done six years earlier. Lind pointed out that few physicians who had not been on long sea voyages could reliably tell scurvy from other diseases. Thus, he observed, physicians claim lemon juice does not cure scurvy because they have been treating other diseases for which lemon juice does no good. On the basis of such failure, German and Hungarian army physicians and "the whole learned college of physicians at Vienna . . . were at a loss how to treat this dreadful calamity" when they saw it.

Glowing admiration for James Lind in recent decades has been challenged by some writers. Why, they ask, did it take 48 years for Lind's original experiment in 1747 to materialize in lemons for the British navy? Perhaps, it is suggested, Lind did not believe strongly in the efficacy of lemons. It is true that he thought there were several "causes" of scurvy. In fact, factors affecting food intake or previous diet and the metabolic demands of other illnesses or hardships in cold weather might have contributed to the susceptibility of various persons to the total or near-total absence of antiscorbutic foods on long voyages. But Lind was clear in identifying "want of fresh vegetables and greens and ripe fruit" as an "extremely powerful cause" of scurvy, and over many years he tried through his writing and through his colleagues and students to persuade the navy to provide lemon juice for sailors. The 48-year delay in changing British naval policy is not surprising to anyone who has read some of the realistic historical literature, such as Patrick O'Brian's novels about the British navy in Lind's time. The Admiralty in London was not overly concerned with the comfort or diet of sailors, nor inclined toward extra expenditures on them. In general, the Admiralty was disinclined to pay much attention to the opinions of a ship's captain, let alone a ship's surgeon. Some have accused Lind of advocating drinking boiled lemon juice to prevent scurvy. In fact, he reported that boiling lemon juice inactivated its power against scurvy. For a time, he experimented with concentrations by heating well short of boiling, hoping to mitigate the complaint that lemon juice took up too much space in the ship's stores.

Lind's tactful persistence against social and hierarchical odds is one of the reasons to honor him. Nevertheless, despite his great labors and the eloquence of one of his students, Sir Gilbert Blane, it was not until 1795, a year after Lind's death at the age of 78, that the British Admiralty provided an ounce of lemon juice per day at public expense to all its sailors expected to be at sea as long as six weeks. In adopting lemons, the British navy was ahead of all other navies in the world, its own merchant marine, and the British army. It has been estimated that in a single stroke—with lemons—England doubled the size of its effective naval forces.

In 1805 Napoleon was unaware that British seamen were protected from scurvy. He ordered his admirals to lure Nelson's fleet to the West Indies as a feint, believing that by the time they returned to defend against Napoleon's plan to invade England, a great many British sailors would be weakened by scurvy. Nelson did follow some of Admiral Villeneuve's ships to Antigua, but this produced no scurvy on the British ships, whereas 1,000 sick Frenchmen had to be put ashore in Martinique. At Trafalgar, where the French had 46 ships to Nelson's 40, Nelson lost his own life, but Napoleon's fleet was virtually destroyed.

After Trafalgar and during the rest of the 19th century, slow progress was made around the world in preventing and curing scurvy, but nothing was as dramatic as James Lind's posthumous victory. Of special interest is that infantile scurvy was not recognized until the latter half of the 19th century, when bottle-feeding instead of breast-feeding became popular and boiling the milk to prevent newly discovered bacterial diseases greatly reduced or destroyed the vitamin C nature had concentrated in the breast milk of pregnant mammals. Infantile scurvy and its prevention or cure with orange juice was first clearly described by Thomas Barlow of London in 1894, but continued to be debated in learned circles for another decade.

It was not until 1937 that Albert Szent-Gyorgyi won the Nobel prize for purifying ascorbic acid from Hungarian paprika. Now, of course, scurvy has been virtually eliminated, and some have wryly observed that the highest concentration of vitamin C is in the urine of Americans.

Still, we can recall James Lind's genius, long before there were Nobel prizes, and see its relevance to the daily work of physicians. He was able by careful questioning and the examination of patients to see the important facts in a confusing tangle of contradictory opinions and anecdotes. Lind's story reminds us all that a physician tries "to distinguish in the tumult the beating of the drum."

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50 Years Ago

From *The Connecticut State Medical Journal*

June 1945

Editorial

The Marihuana Problem

Elsewhere in this issue of the Journal appears a review of the book entitled "Marihuana Problems," written by the New York Mayor's Committee on Marihuana. That the authors of this book arrive at unwarranted conclusions is noted in the review by Dr. Knowlton. Even though there exists considerable confusion in the literature as to the harmful effects of *cannabis sativa*, yet sufficient evidence has already been collected to place this habit forming drug in the category of dangerous addiction. Most authors would classify it somewhere between alcohol and morphine in its addicting qualities because the end result of addiction depends to a larger extent on the personality involved rather than on any physiologically addicting properties of the drug.

This last point is emphasized by Captains Marcovitz and Myers, MC-AUS, in a recent article in *War Medicine.*[1] These writers believe that a completely adequate estimate of the effects of marihuana can be obtained only from considering the entire life pattern of the addict: ie, the addict in relation to himself and to society. Over against the statements in the literature that marihuana is not harmful, that it is not an addicting drug, and that it has not led to crime, we have the findings of these Army physicians that the addicts show a lack of social ties and of warm relationships, that there are paranoid elements present and the feeling of superiority, that there is delinquency and antisocial behavior, depressive feelings and headaches, and self injury, as well as a definite addiction to the drug.

Dr. Fishbein in an editorial in the *Journal of the American Medical Association*[2] informs us that the book emanating from Mayor Laguardia's conservatory has already done harm, among the legal profession as well as among the laity. To add fuel to the fire by proposing, as the report does, that marihuana may be used in the treatment of drug addiction and chronic alcoholism is like taking away a Colt .45 and substituting a machine gun. This could hardly be justified in view of the recommendation of Marcovitz and Myers that "government institutions be created to which such confirmed marihuana addicts may be committed for long term treatment and rehabilitation or for indefinite custody." It is to be hoped that in Connecticut, at least, the report of the Mayor's committee will be given the universal condemnation it warrants and that physicians will not overlook the permanent deleterious effects of marihuana.

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Reprinted from the *Connecticut State Medical Journal*, June 1945.

(50 Years Ago continued next page)

NEW BOOKS IN REVIEW

THE MARIHUANA PROBLEM IN THE CITY OF NEW YORK, SOCIOLOGICAL, MEDICAL, PSYCHOLOGICAL, AND PHARMACOLOGICAL STUDIES BY THE MAYOR'S COMMITTEE ON MARIHUANA.
Lancaster, Pa.: Jacques Cattel Press. 220 pp. $2.50.

Reviewed by Millard Knowlton

This book is beautifully printed in readable type and makes an attractive volume. The studies appear to have been meticulously made and carefully recorded. The difficulty appears to be that the observations made in this study do not justify some of the conclusions reported. This is very properly emphasized in an editorial printed in the *Journal of the American Medical Association* for April 28, 1945.

Some of the shortcomings of the report may be mentioned as follows:

(1) The report is based on experiments with 77 prisoners who were in confinement during the period of study. Quite obviously, this is too small a number to justify general conclusions, even though they had been selected at random instead of being selected from prisoners.

(2) They were observed in groups of six to 10 over a period of from four to six weeks. Quite obviously, observation for so short a period does not justify conclusions concerning the effects of the drug when used over a period of years. Thus, the conclusion that "indulgence in marihuana does not appear to result in mental deterioration" has no justification by the results of the study reported.

(3) Observations on the effect of predetermined dosage on incarcerated people where the dose was not allowed to go beyond "the pleasurable principle" do not justify conclusions as to the effects of marihuana on people who do not have such limitation on dosage. Thus, it would appear that the observations made in this study would not justify any conclusion with reference to the effect of long time use of the drug by people who are free to select their own dose.

(4) A wide variation in potency of hemp from different parts of the world is recognized in the statement that "Tunisian hemp is still 4, 6 and 8.7 times as potent as a Wisconsin, a Kentucky, and a Manchurian hemp, respectively." Quite obviously, the effects resulting from the use of hemp of one potency would not justify conclusions concerning the use of hemp of a much higher potency.

Some of the observations made in this study were incorporated in a paper read at the American Psychiatric Association Meeting in Boston in May, 1942 and published in the American Journal of Psychiatry for September, 1942. As a result of this publication, two significant letters were sent to the editor of the *Journal of the American Medical Association*, one by H.J. Anslinger, commission of narcotics at Washington, D.C., which was published in the *Journal* for January 16, 1943, and the other by Doctor J. Bouquet of Hospital Sadiki in Tunis which was published in the *Journal* for April 1, 1944. Dr. Bouquet is looked upon as the world's outstanding authority on marihuana, and Mr. Anslinger is regarded as our outstanding authority on the narcotic problem in this country. The two letters from these outstanding authorities give very considered and conservative views of the problem. Yet, in spite of the publication of these letters, the book was published later giving unwarranted conclusions.

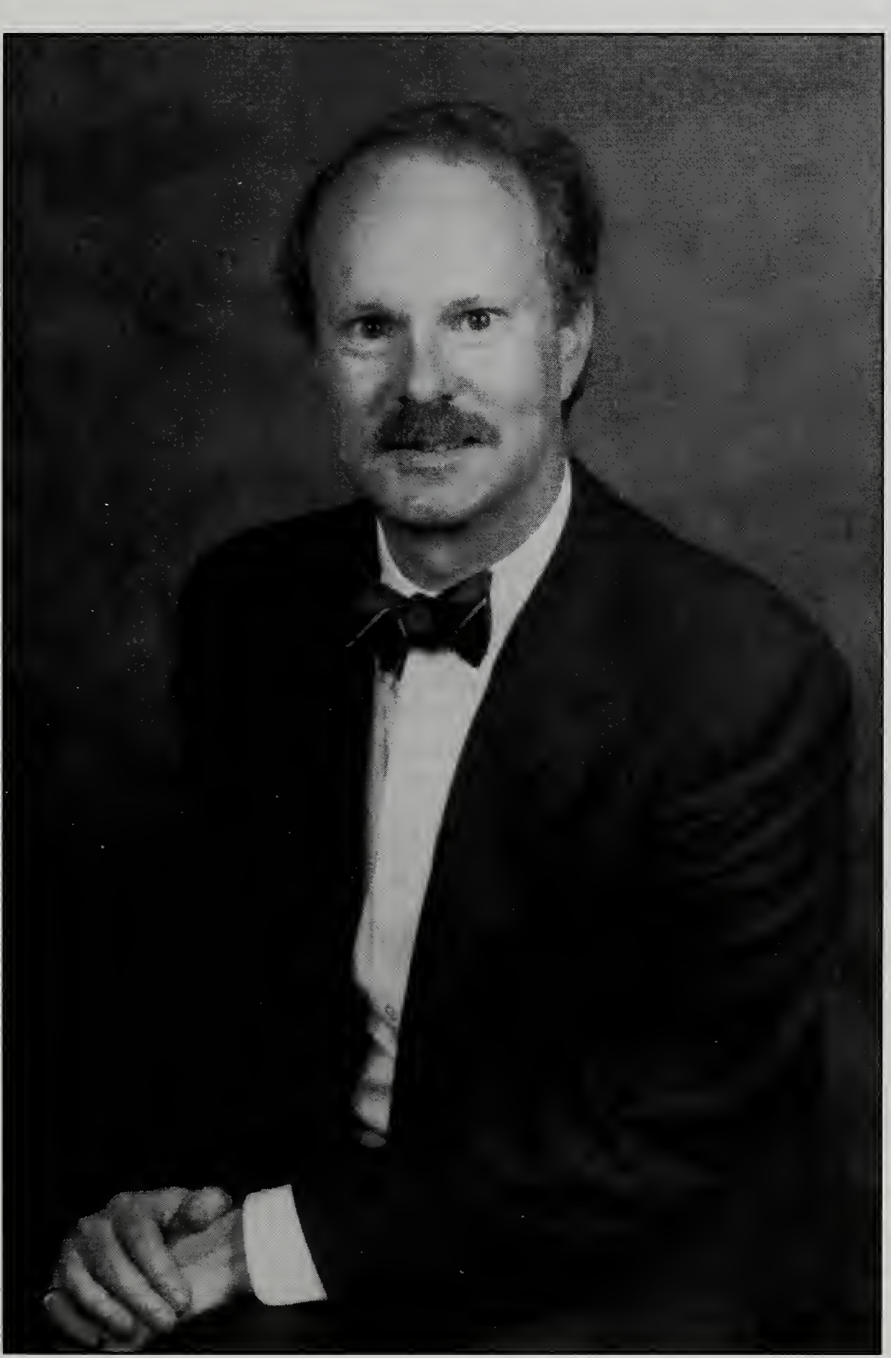
The insistence of those who wrote the book in giving unwarranted conclusions, in spite of convincing evidence to the contrary, may remind one of the persistence of a narcotic addict in explaining to a physician the reason why a narcotic is needed to alleviate symptoms. For example, one addict in Connecticut had a habit of putting on a heavy brace around her neck when going to a doctor's office for prescriptions to convince the doctor that she actually had need for narcotics. After getting the prescription, she would leave the doctor's office, take off the brace and go her way. Another addict acquired the ability to raise her rectal temperature from 5 to 6 degrees by exercising the muscles about the anus. Strangely enough, the report carries the suggestion that Cannabis may be used in the treatment of addiction to other narcotics. This may well accord with the psychology of a drug addict who finds it difficult to get the drug he desires and who wishes to escape the pains of withdrawal by changing to another narcotic. According to recognized authorities, such a change can result in the substitution of one addiction for another.

As an example of confused thinking in the report may be mention the following: "The numerous preparations having marihuana activity are all obtained from members of the Cannabinaceae family. These are usually distinguished from the common hemp by differences in their geographical origin." The fact of the matter is that there is only one species of hemp known as "Cannabis sativa." Many names are applied to this species in different parts of the world, but they are all the same species in botanical classification rather than different "members" of the "family." This may be a reminder of the short-sighted man who "could not see the forest for the trees.'

No doubt many of the observations made in the study are accurately recorded. Yet, in spite of the recording of occasional psychotic episodes following the small dosage given in the study, an attempt appears to be made to draw up conclusions without giving consideration to such symptoms as excitement, antagonism, anxiety, and erotism reported to result from the limited dosage given in the experiment. It is recognized that the harmful effects of Cannabis or marihuana may have been exaggerated for publicity purposes in popular writing, but this does not justify swinging the pendulum entirely over to the opposite side rather than taking a middle course that duly recognizes actual dangers. The numerous crimes reported to have been committed while under the influence of marihuana cannot be dismissed with a gesture. Recognized authorities are fully aware that such incidents have occurred.

On the whole, many interesting observations appear to have been made during the study, but the conclusions drawn are not justified. Incidentally, the cigarette pictured on the paper cover of the book has all the appearances of a machine-made cigarette instead of a hand-made cigarette where marihuana is used. The conclusions drawn from the study may have a similar misleading effect. Unfortunately, evidences are beginning to accumulate as to the bad effects of the report on law enforcement as emphasized in the editorial mentioned in the foregoing.

Reprinted from the *Connecticut State Medical Journal*, June 1945.



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1975	**M.D.**	University of Virginia School of Medicine, Charlottesville, Virginia
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Professional Training:

1978-1981	Fellow, Hematology / Oncology—New York Hospital-Cornell Medical Center
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1976-1977	Junior Assistant Resident, Department of Medicine—New York Hospital-Cornell Medical Center and Memorial Sloan Kettering Cancer Center
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1993-Present	Attending Physician, Greenwich Hospital, Greenwich
1982-1993	Associate Attending, Greenwich Hospital, Greenwich
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Academic Appointments:

1989-Present	Assistant Clinical Professor, Yale University School of Medicine, New Haven
1988-1989	Clinical Instructor, Yale University School of Medicine, New Haven

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1978	Diplomate, American Board of Internal Medicine
1976	Diplomate, American Board of Medical Examiners

Memberships:

1983-Present	Leukemia Society of America, Fairfield County Chapter, Board of Directors
1983-1988	American Red Cross, Greenwich Chapter, Board of Directors
1982-1991	American Cancer Society, Fairfield County Chapter, Board of Directors
1991-1993	American Cancer Society, Fairfield County Chapter, Vice Chairman
1982-1985	Greenwich Health Association, Board of Directors
1985-1988	Greenwich Health Association, President
1988-Present	Greenwich Health Association, Board of Directors
1989-1991	Fairfield County Medical Association, Vice President
1991-1993	Fairfield County Medical Association, President
1988-1990	Connecticut State Medical Society, Assistant Counselor
1990-1994	Connecticut State Medical Society, Counselor
1994-1995	Connecticut State Medical Society, President-Elect
1978-1985	American College of Physicians, Associate
1985	American College of Physicians, Fellow
1975	Alpha Omega Alpha, University of Virginia

Awards:

1971	Buchanan Winthrop Greek Examination Prize, Yale University
1985	The Dr. Melville G. Magida Award
1985 & 1988	Physician's Recognition Award

Publications:

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The New President's Message

Members of the House of Delegates, I thank you for the privilege and honor to serve as the next president of the Connecticut State Medical Society. In these turbulent times for our profession, I recognize the importance and responsibilities of this office, and I will do my best to serve it well.

1993 was a watershed year for American medicine. We are gratified by the defeat of the Clinton health plan. We have been spared the bureaucratic nightmares of a national health board, global budgets, mandatory alliances, and restricted specialty training. But we have not fulfilled the promise of universal coverage. The numbers of uninsured continue to rise, and despite some promising first steps, those who are insured still face the barriers of preexisting conditions and job portability.

The only area in which we have seen some progress has been in costs. The past year did show a substantial reduction in the growth of medical expenditures. But for physicians and patients alike, this has been a Pyrrhic victory: these cost savings have come from the "reforms" of managed care, brought about by restrictions in patient choice, by cuts in physician and hospital compensation, and by market segmentation, the "cherry picking" of the healthiest patients. And only a fraction of these savings have been returned to the subscribers of these plans. Instead, the dollars intended for medical care have become the profits taken for the insurers and investors.

Is this wrong? Isn't this just the free market economy at work? Is it not a bit disingenuous of us, as physicians, on the one hand to fight government regulation of health care, and on the other to complain to the government when we fall victims to the free market? Is it not incongruous to lobby against government regulation of our practices but then demand legislative protection from the insurers and the HMOs who assail us?

I think not. We physicians recognize that health care is not a social *program* applied to large, anonymous population groups according to regulations devised within that infamous beltway. Nor is it a simple *commodity* to be bought and sold on the open market, whose success or failure is defined in dollars and return on investment. Instead, health care is a personal *service* which physicians provide to preserve and restore patients' well-being, one patient at a time. And while government and business will inevitably have a role, the focus of our care has always been and will continue to be on the individual *patient*, a focus that is unique to American medicine and in no small measure responsible for its success.

We physicians know that the government is incapable, and the business community unwilling, to give the quality medical care our profession demands. Therefore, in our role as "organized medicine," we must limit the trespass on our profession by both lawmaker and executive. To do so, we will not only have to influence each of them individually, but to ally with one to fight the other.

And that is what happened in 1993. We allied, if somewhat tenuously, with business interests to keep the government out of a virtual takeover of American health care. We were successful. Now we must go back to government and work with our legislators to prevent business from engineering a takeover of its own.

On both a national and state level, we have been hard at work. The AMA has lobbied tirelessly for the Patient Protection Act, antitrust legislation, medical savings accounts, closure of ERISA loopholes, and CLIA reform. All of these efforts have been well received on the Hill and, I expect, will be incorporated into future legislation. Already we have had a major success in liability reform with the cap on noneconomic damages passed recently in the House of Representatives.

On the state level, we are focusing on legislation for Any Qualified Provider, the Hold Harmless Clause, and antitrust reform. Any Qualified Provider just missed a majority committee vote and may still be revived before the session's end. Hold Harmless passed in a committee nearly unanimously and will soon be debated by the Senate. Antitrust died in committee, but we have reason to be optimistic. Richard Blumenthal, the state's Attorney General, has publicly expressed his support for our antitrust bill.

(continued next page)

What do I see for the coming year for CSMS?

First, we will expand our lobbying efforts in Hartford, must maintain our patients' choice of physician, and not let ourselves fall victim to the arbitrary selection practices and perverse reimbursement incentives of managed care. Such efforts will become even more important when the state's Medicaid program is transferred to the insurers and HMOs. The battles in Hartford, the "Insurance Capital of the World," will be some of our hardest. We will be calling on you to support us both with testimony at the Capitol and with individual contacts with your own representatives. Legislators *are* concerned with the growing corporate control of our profession; they want to hear from us the physicians and from our patients; they *are* listening. Tim Norbeck and staff, working with Sullivan and LeShane, will continue to provide you with timely updates from Hartford and suggestions on how you can make your voice heard. To assist these efforts, we hope to increase the membership of COMPAC. With less than four percent of CSMS members now enrolled, our influence has not lived up to its potential. COMPAC funds do help us get our message heard among our legislators. You can be certain that the insurers and the HMOs are spending many times more to promote their views.

Second, we will educate our patients about the changes in their health care coverage. Patients must understand the subtleties of their insurance contracts. Issues such as specialty access, provider disincentives, selection/deselection procedures, and the like are often dissembled in the obtuse jargon of the insurance industry. Patients should be told how much of their premium dollar is going to health care and how much is going to overhead and profits. For those receiving coverage through the workplace, they must have options and choices, not simply the cheapest coverage their employer can find. To meet these ends, CSMS is creating a consumers' manual. This publication will help our patients understand the different coverage options and enable them to choose a plan which truly reflects their needs.

Third, we as a society must support our own members. While being flexible to the changes in health-care delivery, we will aid physicians in conflicts with insurers, HMOs, and even at times hospitals. CSMS will continue to assist those members who seek judicial redress from arbitrary and capricious corporate behavior. And we will uphold our own physician-run programs as they try to compete with profit-oriented companies.

Finally, and most importantly, we must remember that our goals are not only political. Our patients' well-being is just as dependent on other activities of CSMS as well. I will only mention two for your consideration.

One is our work in public health. Issues such as substance abuse, handguns, domestic violence, and highway safety, are every bit as critical to our citizens as the changes in health-care delivery. And we have an enviable record to date: Many of us have already spoken or written about these issues. We will enhance those efforts with the organization of a speakers' bureau. Started under Ted Zanker's leadership, and with staff assistance from Susan Schaffman, CSMS will provide its members with speaker training and media contacts so that we can educate the public about preventive health measures. We will also expand our work in public health with the state's lawmakers. Two recent issues which we have supported include the mandatory use of motorcycle helmets and a ban on unnecessary incineration of trash.

Another area in which CSMS will have a major impact is in physician health. We ourselves are only human and thus subject to the same problems of substance abuse and age or illness as those we treat. And when these infirmities affect the ability to deliver medical care, intervention is necessary. It our belief that it is physicians who can best counsel and rehabilitate physicians and, by the anonymity of such treatment, enable our recovered practitioners to resume patient care. To this end, we have expanded our program for impaired physicians. Under the leadership of Dr. Neil Grey and with the staff support of Michele Norbeck, CSMS will assist any physician in need and protect the well-being of all our patients.

The agenda for 1995 is long and difficult. I count on the support of all of you, and the physicians whom you represent, over the year ahead. Please contact me or other members of the Council with your ideas and concerns. And thank you again for the privilege of this office.

Dickerman Hollister, Jr., M.D.
President

Why Not Limit Medicare Growth?

ROBERT U. MASSEY, M.D.

BEFORE this page appears in print, the matter will possibly have been resolved in the corridors of power, but I could not, as a confirmed nonexpert, resist making a few comments about the "Medicare cuts." In their laudable plan to balance the federal budget by 2002, the Republican Congress have proposed, among many other things, to slow the growth of the cost of Medicare. The loyal opposition and all the media that I've heard or read have referred to budgeting a slower rate of growth of Medicare inflation, now at 10%, as a Medicare cut. As Mark Twain might have said, "if this isn't language gone to seed, then I count myself no judge." For the first time, earlier this month, the Hartford *Courant*, noting that the AMA opposed Medicare cuts, referred honestly to these cuts as a slowing of growth of Medicare funding.

A year or two after Medicare became law, I was in a meeting in which a hospital administrator defended his proposal to purchase a large equipment item—I believe it was a cobalt radiation unit—as "no problem, it'll simply be a 'pass-through.'" In other words, Medicare would pay for it. Hospitals increased their income in those days by increasing their costs, and there was little incentive to be frugal. Later expensive bureaucratic efforts were made to regulate the stimulating effect of pouring more money into the system, and we had HSAs and SHCCs and hospital costs commissions all over the place. It cost us more in time and money than the cost of the equipment and installation to convince the busy regulators and second-guessers that the John Demsey Hospital, the only university hospital in the country without one, needed a CT scanner.

In brief, health-care costs doubled within two years of the introduction of Medicare[1] and have continued to outstrip inflation since then. To budget Medicare for a 10% or 12% annual increase is to insure that health-care costs will continue out of control no matter how well we "manage" care or tinker with DRGs. Medicare sets the pace.

Projections for the annual growth in the Medicare population over the next 10 years range from 0.7% to 1.3%.[2] The Federal Reserve discipline has been fairly successful in holding the annual inflation rate at around 3%. Why should Medicare costs need to grow more rapidly than the sum of these two, or 4% or 5%? Controlling Medicare will not assure a balanced budget, but without holding these costs in check, hopes for such an achievement by 2002 or 2012 are vain.

I have spoken with friends and colleagues who, like me, are well into their Medicare years. Almost all agree that Medicare premiums should be means-tested. My premiums for Part B are ridiculously low, about 550 dollars a year. Why should they not at least be doubled for those of us who can afford to pay our own way? By historical chance our generation of over 65 year olds are pretty well off, and my grandchildren face a new century of continuing disorder and decline that few of us would envy.

And that is not all that can be done. The AMA's Dr. Todd mentioned fraud and abuse, physician upcoding and mischarging, and marginal and futile care.[3] Few disagree that we need to move incrementally to universal care, but unless we can rationalize the system, especially Medicare, any steps we take now are likely to be missteps. By putting far too much faith in managed care we have almost given the practice of medicine to the insurance companies, who now may be responsible for as much of the costs as physicians, but who add no value to the enterprise.

A real economist will surely show that limiting Medicare growth to 4% or 5% is simplistic, unrealistic, and politically impossible. I heard an academic economist this morning say that a balanced federal budget would be a disaster for the nation. I cannot believe this. Getting rid of that burden of interest ought to have a remarkably liberating effect on our nation. And rationalizing Medicare, keeping it within disciplined limits, would, I am sure, improve the quality of medical care for the elderly by putting the brakes on some of the more aggressive and intrusive aspects of our health-care system.

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2. Siegel JS and Taeuber CM: Demographic dimensions of an aging population. In Pifer A and Bronte L, eds: *Our Aging Society: Paradox and Promise.* New York: WW Norton & Company; 1986: p. 82.
3. Todd JS: Recorded in minutes, annual meeting, Society of Medical Administrators, Naples, Fla., 16 Jan 1995

ROBERT U. MASSEY, M.D., Professor Emeritus, Division of Humanistic Studies, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington.

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This Month's Reading in Review

TIMOTHY B. NORBECK

"Unless some oversight and public accountability is put into our health-care system, the only choices you and your doctor will make about the medications you can get and the treatments you receive will be made by business executives using calculators to diagnose what is wrong with you."

Syndicated columnist Dr. Arthur Caplan,
St. Paul Pioneer Press (10 May 1995)

Citizens Fund, the educational and research arm of Citizen Action, hosted an all-day conference on 10 May "on the dangers of health industry consolidation and corporatization and the effect on quality, access, and cost."

Citizen Action release (3 May 1995)

"And getting it right when it comes to managed care involves very strong quality protections, very strong consumer protections and a lot more information than we have now, because the incentive is to underserve."

John Rother, AARP, on Medicare managed
care concerns, *New York Times* (23 April 1995)

The American Nurses Association contributed $336,046 to federal candidates in the 1992 election cycle and $1,084,508 in the 1994 cycle.... According to the Federal Election Commission, that represents the second largest increase ever in contributions to federal candidates between the two cycles.

American Nurses Association (12 May 1995)

"About 70% of all illness is preventable.... While the average lifetime medical cost in the United States is a staggering $225,000 per person, a sizable chunk of that is linked to health habits and lifestyle."

Special Report: *Business & Health* (April 1995)

Headaches cost employers an estimated $50 billion a year in medical expenses and absenteeism, according to the National Headache Foundation.

Wall Street Journal (5 April 1995)

"Faith in food as a form of health insurance stems from about 200 studies world-wide, showing that people who consume the most fruits and vegetables—such as Seventh Day Adventists—have about half the cancer cases of those who consume the least."

Wall Street Journal (8 May 1995)

A *Congress Daily* survey of 85 former House members who departed at the end of the last session finds 27% pursuing legal careers, 24% lobbying, and 19% "doing nothing."

Wall Street Journal (2 May 1995)

Percentage of mentally ill television characters who are depicted as violent: 77%.... Percentage of the real-life mentally ill who are violent: 7%.

Health (May/June 1995)

"The price of fixing Medicare is likely to be the fixer's political career.... You need to know that, to understand the buck-passing and finger-pointing exhibited in Washington by our elected leaders... Congress must act before Medicare becomes as sacrosanct and expensive as Social Security."

Denver Rocky Mountain News (7 May 1995)

A new study published in *Academic Medicine* noted that in the period of 1984 to 1988, "applications to the nation's 125 medical schools declined steadily to the lowest point in two decades."... The decline "occurred during a period of restructuring of the U.S. economy when jobs in business, finance and real estate grew."...The study found that this year's total number of applicants (45,657) "breaks all records."

Washington Post (9 May 1995)

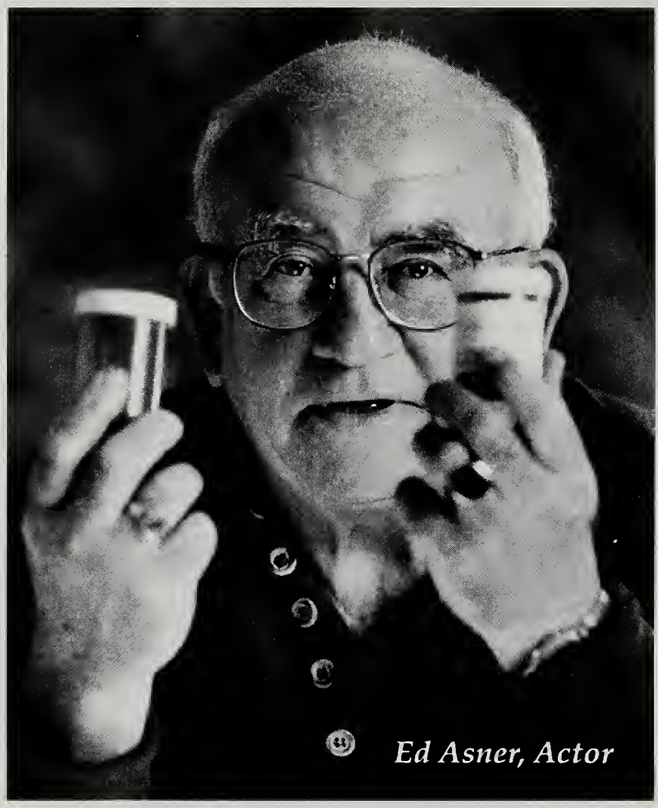
Only in America: The family of an accused killer who plunged to his death while trying to escape from a New Jersey jail has filed a lawsuit seeking damages....The suit charges that jail officials failed to maintain a "reasonably safe facility."

The accused had been in jail awaiting trial in the shooting death of a shopkeeper in 1992.... He was the first of five inmates to climb through a hole in the jail wall but fell to his death. The other four escaped.

Fortune (29 May 1995)

TIMOTHY B. NORBECK, Executive Director, Connecticut State Medical Society.

Attention: Physicians



Ed Asner, Actor

Have your patients' medicines had a check-up?

Many of your patients take several different medicines every day. Separately each one works well. But if they take two or more different medicines in combination without checking with you to be sure they work safely together, they can sometimes be harmful...even dangerous.

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A public service message from the National Council on Patient Information and Education (NCPIE) and the U.S. Administration on Aging

Letters to the Editor

Letters to the Editor are considered for publication (subject to editing and abridgment), provided that they are submitted in duplicate, signed by all authors, typewritten in double spacing, and do not exceed 1-1/2 pages of text (excluding references). They should not duplicate similar material being submitted or published elsewhere. Letters referring to a recent *Journal* article should be received within six weeks of the article's publication.

Regarding the Credibility of Childhood Memories of Sexual Abuse

Letter to the Editor: I wish to take issue with Dr. Berman's stated opinion (Posttraumatic Stress Disorder and the Lost Memory Syndrome, March 1995) that young children cannot interpret sexual contact as abuse, since they lack the understanding that this behavior is wrong. This implies that children need prior, direct tuition in the inappropriateness of sexual abuse in order to experience it as traumatic. Presumably, children who lack this prior knowledge do not experience sexual contact as wrong.

While the argument put forth by Dr. Berman might make logical sense, it falls apart at the practical level, when one considers both the variety of ways in which children learn, and the opportunities for such learning to occur within the sexual encounter itself

As Dr. Berman correctly asserts, children can learn about sexual abuse by direct tuition (eg, "It is wrong to let somebody touch your private parts."). However, there are other common ways in which children gain an understanding of their world. One major avenue of learning is via what developmental psychologists refer to as incidential learning, which includes the indirect references (often attitudinal) which parents, or others, make to events, issues, or concepts. This is the kind of learning undertaken by children when they enter into a strange situation with a parent. In this case, the parent's own reaction to the situation (angry? content? frightened?) will be a reference for the child's own behavior and feelings. In such a way, children "know" when to be fearful or assured, even though they do not understand the nature of the situation by prior direct tuition.

It is likely that a sexual encounter between a naive child and an adult who clearly understands this is wrong, is ripe with such opportunities for inferential learning. Comments such as "Don't tell," or "This is our little secret," can clue the child in to the fact that something is amiss, even if it is not clear what that means specifically. Similarly, children can become distressed when their caretakers behave in an unanticipated, unusual manner, even if they do not understand the reason for it. Consequently, witnessing a familiar adult experience sexual tension and pleasure may be discomforting to a child, simply because of its unfamiliar nature. This discomfort will be exacerbated to the extent that the child feels restrained, overpowered, or physically uncomfortable, all likely components of an adult-child sexual encounter, particularly if it involves intercourse. Finally, since the adult does understand the inappropriateness of the abuse, even if the child initially does not, any behavior which indirectly conveys that knowledge (eg, guilt, deceit) is available to the child as an emotional tag to the experience.

While the larger issue regarding the credibility of childhood memories of sexual abuse, which Dr. Berman entertains, remains difficult, the suggestion that they lack veracity because sexual encounters are not experienced by the uninstructed child as traumatic is unfounded.

Debra McQuade, Ph.D.
University of Connecticut School of Medicine
Class of 1998
Marlborough

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Declining Services for the Chemically Dependent

Letter to the Editor: At this time in our country changes are occurring in health-care delivery despite the failure on the part of the Democratic administration to effect them through the federal legislative process. The rise of managed care organizations underwritten by health insurance purveyors has drastically changed the scope of health-care delivery especially to those without means and with diseases and disabilities that are currently viewed as the result of behaviors that are held to be socially unacceptable. These include alcohol and drug dependency especially if the latter is the result of illicit drug use. Chemical dependency, especially to heroin and cocaine, tends to chronicity and relapse. Chronic diseases are expensive to treat over the long term and the drug and alcohol dependent are generally socially and fiscally bankrupt. The current medical-care system does not want to care for them and, despite protestations to the contrary, hospitals and other health providers are curtailing services for this segment of society.

The detoxification services in my community are gradually being phased out. When patients are screened for possible detoxification, if they are not in the 10-town "catchment area," they are not admitted, even if they have means. The reduction in occupancy is then used as an excuse for shutting down the inpatient detoxification unit. This is rationalized as a national trend and indeed it is. Inpatient services for the chemically dependent are being reduced everywhere. Minimal lengths of stay are insisted upon in hospitals and free standing rehabilitation facilities everywhere.

As hospitals abdicate responsibility for this particular population of the unwell, it will fall back upon the community to provide basic services for their chemically dependent fellows who have been dispossessed from healthcare access at that level. It will be back to the drawing board to try to find ways and means to pick up where the larger, eclectic health-care providers have left off. It is a huge backward step from what was available to the sick dependent person three or four years ago. What can the recovering community provide for their sick neighbors? Will the political leadership recognize the need for structured facilities outside the expensive hospital setting, help to plan them and fund them? These questions must be posed now. What impedes dealing with these issues is the semantics and waffling on the part of health-care providers designed to make the public believe that they *want* to provide these services when they really don't. They must come clean and tell the truth about the financial considerations that have led to their decision to minimize these services. The community needs to know the truth so that the difficult task of providing some sort of reasonable care for their dependent peers can be undertaken now.

Henry N. Blansfield, M.D.

Danbury

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SUMMARY OF PROCEEDINGS
CSMS HOUSE OF DELEGATES—ANNUAL MEETING
RAMADA INN, MERIDEN—MAY 10, 1995

Reports and Addresses

The House received reports, addresses and/or remarks from the incoming President and the retiring President, Secretary, Treasurer, the Chairman of the Council, Delegates to the AMA, Chairman of the Board of Directors of COMPAC, the CSMS Executive Director, M.D. Health Plan, Connecticut Medical Insurance Company (CMIC), Standing Committees, Representatives and Advisors, and Delegate from the Massachusetts and New Jersey Medical Societies. There was also a special report on the CSMS CME Accreditation program. All of the reports and resolutions were published in the Handbook that was distributed to the delegates, with a few exceptions. The address of the Executive Director, Tim Norbeck, and the retiring President, Theodore Zanker, M.D. appear at the conclusion of this summary. The inaugural address of the new President, Dickerman Hollister, Jr, M.D., appears as the President's Page in this issue.

PRINCIPAL ACTIONS TAKEN

Election of Officers and Others

The House voted to approve the published report of the Nominating Committee (the Council). Officers elected were:

President: Dickerman Hollister, Jr., M.D., Greenwich
President-Elect: Michael M.Deren, M.D., New London
Vice-President: Stanley J. Keating, Jr., M.D., Hartford
Secretary: John P. Bigos, M.D., New London
Treasurer: Robert R. McDonnell, M.D., New Haven
Speaker of the House of Delegates:
  Howard J. Wetstone, M.D., Hartford
Vice-Speaker of the House of Delegates:
  Sultan Ahamed, M.D., Norwich
Councilor-at-Large:
  Theodore Zanker, M.D., New Haven

Delegates and Alternates to the American Medical Association:

Edward A. Kamens, M.D. Fairfield (D)
  1/1/96-12/31/97
Joseph C. Czarsty, M.D., Waterbury (A)
  1/1/96-12/31/97
Jerome Bobruff, M.D., New London (D)
  1/1/96-12/31/97
Roger S. Beck, M.D. Wethersfield (A)
  1/1/96-12/31/97
Jerome K. Freedman, M.D., Branford (D)
  1/1/95-12/31/96
Neil H. Brooks,M.D., Rockville (A)
  1/1/95-12/31/96
Joseph S. Sadowski, M.D., Hartford (D)
  1/1/95-12/31/96
Anthony P. Redmond, M.D., Greenwich (A)
  1/1/95-12/31/96
Mehdi S. Eslami, M.D., Waterbury (D)
  1/1/95-12/31/96
John B. Franklin, M.D., Hartford (A)
  1/1/95-12/31/96

In approving the report of the Nominating Committee, it was also voted to increase the membership of the Committee on Geriatrics to 20 members.

Following are the actions taken on the business that came before the House:

PROPOSED BYLAW AMENDMENTS

The two bylaw amendments that were placed on the table at the Semi-Annual Meeting in November 1994 that were concerned with facilitating voting in the House of Delegates and changing the code of parliamentary procedure from Robert's Rules of Order to Sturgis Standard

Code of Parliamentary Procedure, current edition, could not be acted upon due to the lack of quorum necessary for adopting amendments to the bylaws.

AMENDMENT TO THE CSMS CHARTER

An amendment to the CSMS Charter to create the CSMS Physicians' Health and Education Fund was approved. The purpose of this amendment is to make it possible for the Society to establish and maintain a separate fund exclusively for charitable, scientific, and educational purposes, apart from its other funds, to be known as the CSMS Physicians' Health and Educational Fund. The Fund would be organized and operated exclusively for charitable, scientific and educational purposes within the meaning of Section 50l(c)(3) of the Internal Revenue Code.

RESOLUTION:
What Is the Doctor-Patient Relationship?

This resolution was introduced by a member of the New London County Medical Association and had to do with the ethics of mandated capitated gatekeeper mechanisms. It was voted not to adopt this resolution.

RESOLUTION:
Legislation Predicated Upon the Patient Protection Act

The following resolution, introduced by the New Haven County Medical Association, was adopted.

RESOLVED, that CSMS shall seek legislation that is predicated upon the AMA's Patient Protection Act, specifically addressing requirements for Qualification of Health Benefit Plans, and be it further

RESOLVED that CSMS shall work with the appropriate regulatory agencies of the State of Connecticut to incorporate guidelines for quality assurance of managed care entities into the approval process for such entities to do business in Connecticut.

RESOLUTION: Managed Care

This resolution was introduced by a delegate from the New Haven County Medical Association and was concerned with the ramifications of managed care. The House approved the reference committee's report that stated it agreed with the essence of the resolution, but found it too complex in its current form. It was believed that the House of Delegates would best be served by referring the resolution to the Council for an opportunity for wider discussion. In recognition of the fact that many of these issues have been addressed or are currently being addressed by CSMS, it was recommended that the staff prepare an analysis of the resolution which would include:

1. A comparison to what has been done by CSMS.
2. An identification of ongoing new issues.
3. The potential cost of the proposed initiatives.
4. The options for further committee involvement.

It was also recommended that the Council report back to the House of Delegates in November.

PROPOSED BYLAW AMENDMENT

The CSMS Council placed on the table for action at the next regular meeting of the House of Delegates an amendment establishing a Committee on Physician Health in the CSMS Bylaws.

PRESENTATIONS AND AWARDS

M.D. Health Plan

Following his report to the House of Delegates, Vincent Catrini, M.D., Chairman of the Board of Directors of MDHP, presented a check to Theodore Zanker, President of CSMS, in the amount of $500,000 made payable to the CSMS Charitable Trust, a charitable trust "associated with CSMS, in order to provide funding for charitable and educational purposes from time to time identified by such Trust, which purposes may include, among others, programs regarding physician health." M.D. Health Plan made this contribution in recognition of the State Medical Society's foundational role in conceiving, expediting, and supporting M.D. Health Plan's development with CSMS policies, finances, and human resources.

Connecticut Medical Insurance Company

Following his report to the House of Delegates, Sultan Ahamed, M.D., Chairman of the Board of Directors of Connecticut Medical Insurance Company (CMIC), presented a check to Dickerman Hollister, Jr., M.D., President-Elect of CSMS, in the amount of $42,000. Dr. Ahamed reported that the CMIC Board voted to give approximately 42,000 dollars a year for the next five years for the implementation of the Physician Health Program and educational activities.

American Medical Association Education and Research Foundation (AMA-ERF)

Dr. Zanker presented the following awards:

To the University of Connecticut School of Medicine: $5.558.53—Bruce Koeppen, M.D., Associate Dean, Academic Affairs and Education, accepted the check.

To the Yale University School of Medicine: $7,744.73 Lawrence Cohen, M.D., Assistant Dean, accepted the check.

Connecticut Science Fair Awards

Dr. Zanker announced the following awards:

First Place—Senior Division—Rafael Breiner, Bridgeport Hillel Academy, Fairfield

Project: "Quantitative Comparison of Iron in Cereals and Absorption by the Body"

Second Place—Senior Division—Justin Goldberg, Fairfield Hillel Academy, Fairfield

Project: "Bactericidal Effects of Various Spice Vapors"

First Place—Junior Division—Jennifer Blessing, Southington, Eleventh Grader, Southington High School

Project: "Inhibition of Herpes Simplex *vs* Heliase Activity"

Second Place—Junior Division—Alicia Miller, New Britain Ninth Grader, Mary Immaculate Academy, New Britain

Project: "Bacteria in Hospital Water"

The first place winners received a plaque and a check. The second place winners received a book which chronicles events and important people in the history of science and medicine.

Award to Retiring President

Dr. Joseph Czarsty, Chairman of the Council, presented a Paul Revere silver bowl and past president's pin to Theodore Zanker, M.D.

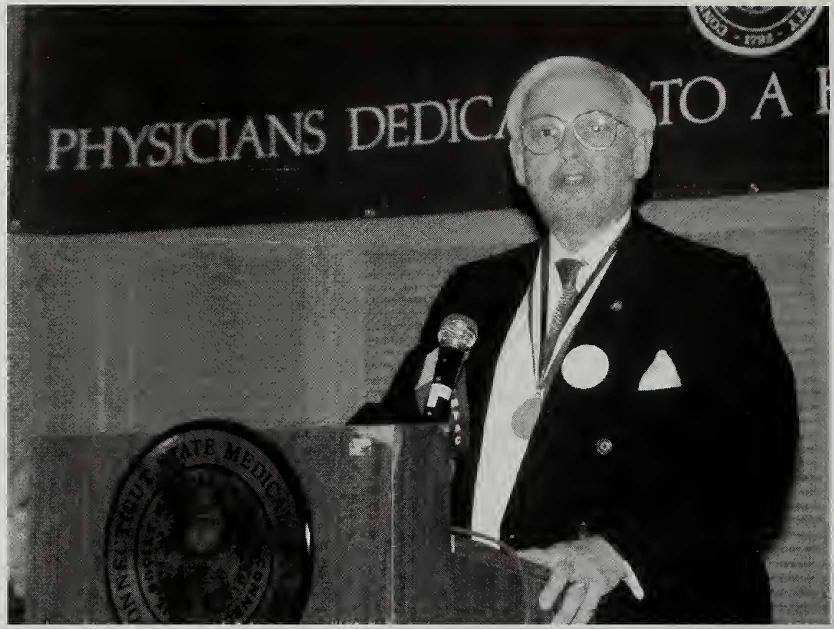
Inauguration of New President

Dr. Zanker gave the Oath of Office to the new president, Dr. Dickerman Hollister, Jr., Greenwich, and presented him with a gavel and a presidential medallion, inscribed with his name and date.

Recipients of Connecticut Science Fair Awards, (left to right) Justin Goldberg, Alicia Miller, Rafael Breiner, and Jennifer Blessing.

Theodore Zanker, M.D., presenting American Medical Association Education and Research Foundation (AMA-ERF) checks to Bruce Koeppen, M.D., (right) of the University of Connecticut School of Medicine and Lawrence Cohen, M.D., (left) of Yale University School of Medicine.

Theodore Zanker, M.D., giving his address as retiring president.



Joseph C. Czarsty, M.D., (left) Chairman of the CSMS Council, presenting the Past President's Award to Theodore Zanker, M.D.

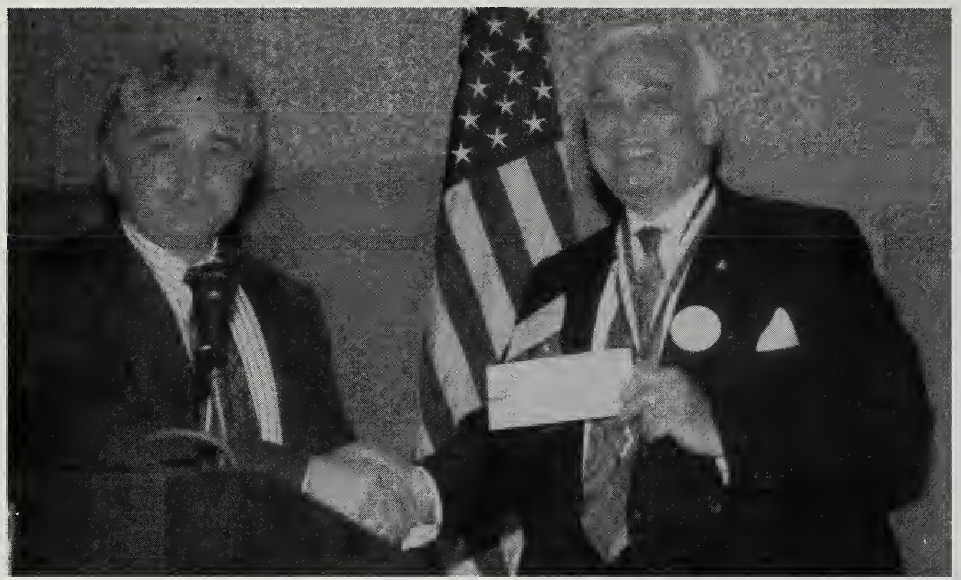
Theodore Zanker, M.D., (left) administering the Oath of Office of President to Dickerman Hollister, Jr., M.D. (right).

NS D ED TO A THIE

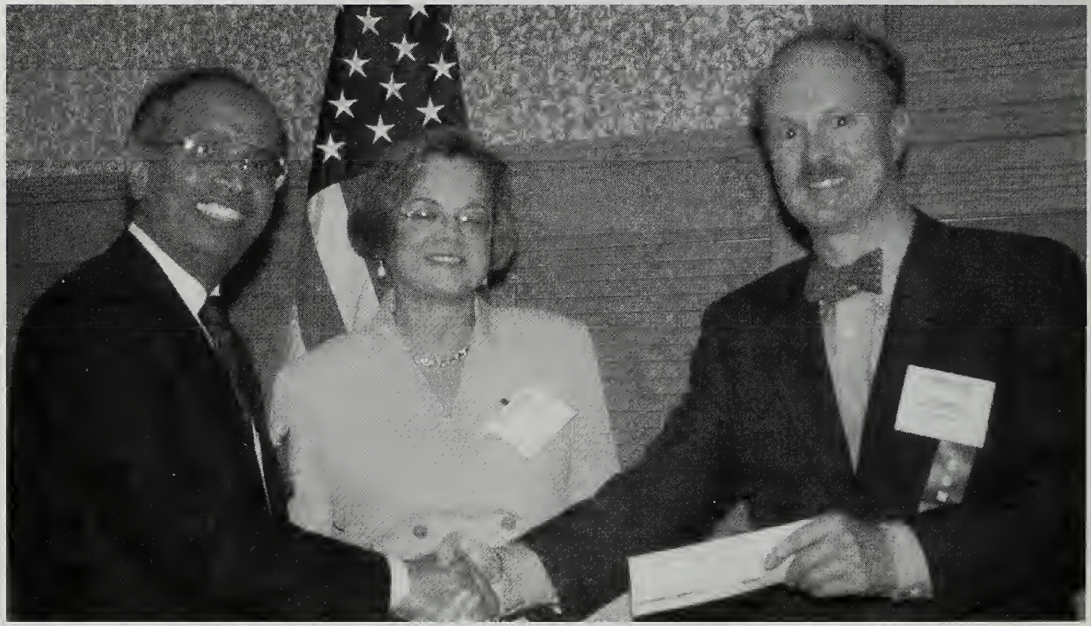
Theodore Zanker, M.D., presenting newly elected president, Dickerman Hollister, Jr., M.D., with a gavel.

Dickerman Hollister, Jr., M.D., giving his inaugural address.

President Dickerman Hollister, Jr., M.D., with his wife Frankie and daughter Reed.



Vincent Catrini, M.D., (left) Chairman of the Board of Directors of M.D. Health Plan presenting a check for $500,000, made payable to the CSMS Charitable Trust, to Theodore Zanker, M.D.



Sultan Ahamed, M.D., (left) Chairman of the Board of Directors of Connecticut Medical Insurance Company (CMIC) and Denise Funk, CEO of CMIC, presenting a check for $42,000 to Dickerman Hollister, Jr., M.D., for the implementation of the Physician Health Program and educational activities.,

(left to right) John Bigos, M.D., newly elected Secretary of CSMS, Michael Deren, M.D., President-Elect of CSMS, Jerome Bobruff, M.D., Delegate of the AMA, and Stephen Ducey, M.D., Secretary of the New London County Medical Association.

Address of the Executive Director

CSMS Annual Meeting—House of Delegates
10 May 1995

TIMOTHY B. NORBECK

BACK in the days when the Spanish Armada challenged England for supremacy of the open seas, the lookout in the crow's nest of a British vessel alerted his captain of a Spanish galleon approaching to starboard. The captain made ready to engage the enemy and asked his manservant to bring his red coat.

After the sinking of the galleon, the manservant asked his captain why he always asked for his red coat when encountering the enemy. The captain explained that it was important for the crew to perceive that the battle was going well—that often perception was more important than reality. If the captain were wounded, the crew wouldn't actually see the blood on a red coat.

At that point the voice of the lookout was again heard over the din: "Captain, sir, enemy galleons are sighted on the starboard side and port, and fore and aft; we are surrounded!"

"Quickly!" shouted the captain to his manservant, "bring me my brown trousers."

Now, I would not ask you to believe that insurance company CEOs in Hartford are reaching for their brown trousers every time they engage us at the legislature on the host of issues on which we disagree, but there is no doubt that they have come to respect us and to be more than just aware of our presence. Up to now the insurers have been effective in following Forest Gump's advice: "If you can't sing good, sing loud."

But we are winning allies in our struggle to get some fairness and balance back in our health-care system. It is not coming as fast as we would like, but it *is* coming.

When the insurers, with all of their financial resources, legislative might, misrepresentations, and threats to leave the state, can only muster a 12-12 deadlock in the Public Health Committee to block "Any Qualified Provider" legislation, we are making progress. When the Judiciary Committee reports out a CSMS-CMIC "Hold Harmless Clause" bill—despite insurance efforts to kill it—we are making progress. And when our state's attorney general perceives a need to level the playing field for physicians, we are making progress.

All of medicine must better communicate its message to the public, namely the patients you and your colleagues serve. The situation evokes Oscar Wilde's observation after a disappointing reaction to one of his plays. "The play was a great success," he said, "but the audience was a total failure." But our audience is beginning to understand its stake in all of this. We will not achieve the changes we seek, however, until your patients feel threatened and resent the fact that managed care discussions of late have become more of a dialogue over corporate mergers, management bonuses, and practice acquisitions instead of illness, coverage, and patient choice.

Some of our insurance friends do care about patients and the quality of their care. But for others, their concerns appear to be as hollow as their promises. Some are living proof that you can put lipstick on a pig, give it a purse, and call it Monique, but it's still a pig.

Many centuries ago in the marketplace of Athens, the philosopher Thucydides was asked by a fellow citizen, "When will justice come to Athens?" And Thucydides replied: "Justice will not come to Athens until those who are not injured are just as indignant as those who are injured." We must help the public understand that everyone is subject to possible injury in a system where economics and not medical needs appear to be the controlling force.

Certainly it will take nothing short of that kind of an all out assault to win back patients' and physician choice. With the struggle we have ahead of us, perhaps it is good that things are never easy—that we always have to be at our best.

The late Tom Watson of IBM loved to tell Kierkegaard's tale about a man who relished watching the annual flight of wild ducks. Each year he sowed a nearby lake with feed so the ducks would stop to eat. Some of the ducks gave up flying south entirely and wintered at the lake instead. In time they grew fat and lazy. Why bother to fly south when you have everything laid out for you?

The moral, of course, is that you can make wild ducks tame, but you can never make tame ducks wild again.

We are undergoing a managed-care revolution in this country, and no one is suggesting that it be dismantled or destroyed. But with that revolution should come responsibility and accountability to make certain that the interest of Connecticut's patients cannot ever be sacrificed to the profit motive. At present, there is no individual or entity in Connecticut with the authority to address or remedy real grievances of patients and providers.

Much has occurred in the 13 years since the General Assembly amended the insurance statutes that govern health care to include health maintenance organizations. Since 1982, the HMO industry and managed care have grown far beyond anyone's expectations. With so much at stake for patients, isn't it time to establish some regulations for an industry that has changed so much of late and yet remains one of the most unregulated in the state?

Shouldn't there be some checks and balances in place, some kind of safeguards, to prevent possible abuse of such power, to assure that medical judgment prevails in medical decisions?

Never in memory have patients had less of a choice in selecting their physicians. Never before have caregivers had less authority to render the care that their clinical judgment, gained over many years of training, tells them is necessary. Never before have third-party profits had such potential to undermine needed medical care.

Patients should be entitled to know relevant information before they join a health plan. What is and what isn't covered in the plan, and how does a patient file a complaint? Is there a point-of-service option, so that a patient can go outside the plan for a physician if he or she desires? And if so, what is the cost, and is it reasonable? What approval process is necessary for the patients to get the care they need as well as for the physicians who seek to treat them? The medical-loss ratio, that is, the amount of premium spent on actual medical care, should be made public on every plan.

Up to now, getting that information out of the "hype" and fine print has been like nailing a drop of water to the wall. The public in this regard is confused and not unlike Mrs. Albert Einstein when she was asked if she could make sense of her husband's theories. "I understand the words," she said, "but I don't always understand the sentences."

We must do everything we can to convince legislators that they should believe as we do that the business of health should be health.

We know how seriously you and your colleagues take your important work. And we wouldn't have it any other way. William Morris, a very successful British poet and artist, once did a beautiful oil painting of a man in his death agony. He was proud of the vivid detail and colorful strokes captured on the canvas. He couldn't wait to show it to his friend, a physician. "Well, what's your opinion?" he demanded, after the doctor had studied the painting. "Malaria," said the medical man without hesitation.

If artist Morris felt unappreciated, he should have heard the story about the U.S. physicist, Robert Millikan, who was awarded a Nobel Prize for his work in measuring the charge of the electron. His spouse was passing through the hall of their home one day, and she overheard their maid answering the telephone. "Yes, this is where Dr. Millikan lives," the young women said, "but he's not the kind of doctor that does anybody any good."

Winter is over and spring time once again reminds us of baseball. The greed of some insurers over profits at the expense of physicians and patients reminds me of that same avarice exhibited by baseball owners and players at the expense of fans. But there is something related to baseball that physicians can take heart in—a comment made by the man who broke the color barrier, Jackie Robinson. A man of great character, he said: "A life is not important except in the impact it has on other lives." Who can argue his impact on the lives of others; who can argue yours?

Yes, these are difficult times. Yes, insurers have gained way too much power over health care today. Yes, there is presently no level playing field for physicians. And yes, physicians are divided. But all this can and must change.

Insurers will stumble. There will be a limit to the discounts managed care companies can extract from physicians and others. The public wants to choose its own physicians. We are making real progress on tort and antitrust reform. AMA, with help from Connecticut, in the House, has made unprecedented gains in tort reform. Those gains are just building blocks for what is to come. As you know so well, patients and their diseases and broken bodies do not fit into neat little boxes. More and more legislators, in Connecticut and nationally, recognize this. This is not Armageddon. Pendulums have a way of swinging over time, and this pendulum will surely not stay where it is.

We must remind those physicians discouraged and disheartened by present day events that the profession has faced equally difficult times before. There is a letter to the AMA's journal, *JAMA*, where an Ohio physician wrote that "members of the profession are constantly humiliated and insulted by wealthy corporations, state, county, and city officials." Doctors, he complained, had no power compared to organized business or labor. Physicians like himself were forced to work on contract for big corporations for pitifully low fees. Angered also by his colleagues, he concluded by saying that "if I do not accept the fees the company offers, the work will go to another physician and the company knows it can get plenty of doctors to do their work for whatever they are willing to pay." Sound familiar?

That letter was written 93 years ago and was just one of many back then expressing the anger and disenchantment of your colleagues of that era. Fortunately, as author Paul Starr tells us, physicians finally came to rely on each other's good will and trust and began to achieve the unity and coherence that had so long eluded them. They worked together, joined medical societies and the AMA, and forged change. It happened before in a time of great crisis and it must happen again.

Gain strength and pride from the words of Sir William Osler: "In the records of no other profession," he said "is there to be found so large a number of men and women who have combined intellectual preeminence with nobility of character."

In closing, this effort of ours to once again restore the physician as head of the health care team will require a strenuous effort. As Henrik Ibsen stated: "When you are fighting for truth and justice, wear your old clothes because it's going to be a tough fight."

What each of you does in this fight is very important. Each call you make to a legislator, each letter you write to a legislator counts in our overall struggle. Don't ever think that you or we are powerless in this fight. Each of you, and each of the colleagues you represent here and the patients you care for can make a great difference.

I don't know of a better story to illustrate this than the one told by Loren Eiseley in his book, *The Star Thrower*. One day he was walking along a sandy beach where thousands of starfish had washed up on the shore. He noticed a little boy picking up the starfish one by one and throwing them back into the ocean.

Eiseley observed the boy for a few minutes and then asked what he was doing. The boy replied that he was returning the starfish to the sea from the hot sand, otherwise they would die.

Eiseley then asked how saving a few of them, when so many were doomed, could possibly make any difference whatsoever. The boy picked up a starfish and held it in front of Eiseley. "For this one," he said, "it will make all the difference in the world."

CAVEAT 2: Other Possible Scams!

The AMA has learned of a provider network, **All Net**, which is soliciting physician participation in its panels in New Hampshire, Wisconsin, and possibly other states. All Net requires a $250 registration fee, limits participation to approximately 18% of physicians in each specialty, and appears to market its network primarily to union benefit programs. The AMA has no information as to the length of time All Net has been in operation, the number of contracts it has with physicians or payers, or any other descriptive data.

Another network soliciting physician participation is **Health Designs, Inc.**, or **Medical Benefits Services, Inc.**, operating out of Indianapolis, Indiana. This organization seeks memberships at $900 per year, refundable if an increased patient base does not permit the physician to make up that amount in volume. This group also seeks a onetime $350 "credentialling" fee.

As with any other network, physicians should be advised to acquire as much specific information as possible regarding the benefit to them of contracting, prior to doing so. Ultimately, however, each physician must make an individual decision whether to join these groups.

Address of the Retiring President

CSMS Annual Meeting—House of Delegates
10 May 1995

THEODORE ZANKER, M.D.

THIS is my final address as your president, and I leave office with mixed emotions. Part of me is relieved to be out from under the enormous responsibilities—not only timewise, and God knows that's grueling on a solo practitioner, but also the responsibility to keep things moving forward and not screw up—an emotion we're certainly all familiar with. On the other hand, there's some sadness to leave the excitement of being at the center of decision-making and the sense of personal gratification when things do go right and good things happen.

Last year, in my initial address to you, I spoke of my concerns about the rapid pace of change and the revolution brewing in the delivery of health care. These concerns remain, but I think it is important, first, to first review how much we have all accomplished together in one short year. In these times of great concern about the future, I would like to provide a roadmap for hope and positive action—one where we can help shape the future rather than allow the actions of others to shape it for us.

Within the Connecticut State Medical Society, we've moved forward in several areas. We've instituted, funded, and staffed a statewide physician health program that we expect will provide value-added services toward identifying and helping those of our colleagues who are losing their way in the world. Toward that end, we have successfully enlisted partners whose sizable contributions provide a splendid start to what could become a self-supporting, milestone program. The contributors include, from CMIC, approximately $42,000 per year for five years if the program proves successful and, from the medical staff at Hartford Hospital, a contribution of about $15,000 for the first year and then continuing contributions of about $7,500 per year, again, based on the program's success. Our financial infrastructure will be further buoyed by the $500,000 contribution from M.D. Health Plan to our Charitable Trust. These funds will make it possible for us to extend our good works and education programs in the future, placing us even more strongly in the public spotlight, in positions which encourage public support for our goals.

We have strengthened our membership in COMPAC and we received an award from the AMA this year for increasing AMA membership for the fourth year in a row. These badly needed funds were instrumental in opening doors and ears, both in our state legislature and in our congressional delegation. Nontheless, we remain woefully behind our adversaries in the financial support we provide and I surely hope we can continue to do better in the coming year.

We are at the beginning of a new joint venture with PROCIS—an offshoot of CPRO, to institute a credentialling program that will be of use to all of us in cutting down the time and expense responding to all the "alphabet-soup" organizations that require us to fill out endlessly redundant forms. This doctor-friendly enterprise, when successful, will also bring in additional income we hope will relieve some of the pressure for dues increases.

On the state and national scene, our influence has been felt more strongly than ever. Connecticut is still the insurance capital of the U.S. At the outset of our legislative campaign, we were looking at seemingly hopeless fights. We took a "can-do" attitude, and many of you were called upon and graciously volunteered to join as soldiers in these fights. We had tremendous support from our staff and from our lobbyists Sullivan & LeShane. Together, we accomplished seemingly impossible goals. The "Hold Harmless" legislation has been successfully reported out of committee and is awaiting a floor vote. The antitrust legislative relief we sought found active support from our Attorney General, Richard Blumenthal, while the opposition fielded an alliance of CBIA, insurers, and managed care companies. The surprising thing about this legislation is that it almost made it out of committee, but the Chairman, hit by intense pressure from both sides, let the clock run before the committee could vote. Earlier, everyone predicted it would be killed hands down. Your energy in lobbying your elected leaders was the reason we got so far this time. Next time, working together, we're going to win. The "Any Qualified Provider" legislation "ain't dead yet, by a longshot." It, too, was predicted to lose by a lopsided vote. The insurance industry threw incredible resources against us and published tens of thousands of pamphlets that I will politely describe as "departing from the facts." I can assure you with pleasure that they are now frightened by us and by the alliances we have forged. We haven't given up yet. We are consulting with our allies in related professions and are raising a lot of effective hell in this area. We may launch a public information campaign and take it to a floor fight if the situation warrants it.

Finally, on the national scene, the debate this year on tort reform presented us with opportunities we've dreamed about for the past 25 years. Thousands of doctors across the country and tens of thousands of supporters, led by the AMA, provided possibly the most intensive legislative campaign ever mounted by organized medicine. In my view, there was much confusion in Congress and in the media, where some construed a cap on noneconomic damages as placing a $250,000 limit on total awards. I'm given to understand that the trial lawyers built up a $20 million war chest against which the AMA raised an $800,000 campaign fund. Would that we were as committed as our adversaries. In any case, you had only to experience talking directly with our congressional leaders, as some of us in leadership did, to appreciate how much they respect us and how highly they regard doctors. Many legislators had a personal story to relate about how they or their family were touched. Bob Dole, who was severely injured in WWII was one.

On several occasions, I've pointed out how it's impossible to understand from the media what's really happening. The media is driven by sensation and controversy. I can tell you that no small amount of the trial bar's $20 million war chest went toward a profoundly effective public relations campaign aimed at manipulating public sentiment. Take, for example, all the recently publicized hospital maloccurrences—you'd think modern medicine suddenly went into a nosedive. In the case of the Florida man who presumably had the wrong foot amputated, hardly one report bothered to check that he was supposed to have both feet amputated, and the confusion was really over which one to do first. So while we are reacting to media reports of the defeat of the noneconomic cap in the Senate, we shouldn't forget the enormous success of the $250,000 cap in the House. You likely also haven't heard that while the Kyle amendment (with the cap) lost in the Senate (by only 44-56), the amendment by Senator McConnell of Kentucky passed (53-47) and this contains several important provisions: collateral source offsets; periodic payment of future damages over $100,000; attorney fee limits of one-third of the first $250,000 and 25% over that amount; good pre-emption language that would not overturn stronger state laws; joint and several liability on noneconomic damages; and higher standards for awarding punitive damages and a cap on punitive damages of $250,000 or two times "compensatory" (economic and noneconomic combined) damages. In my book, this is a major victory. Even though we didn't get the pain and suffering cap which we so badly wanted, that's the democratic process. The AMA is obviously alive and well and so is your state society, which was actively involved in this fight, at times literally on an hourly basis in contact with Washington.

So, if you want to know what we can accomplish, just look back on the past year and let us use that as a roadmap for the future. Look at what we can do when we develop a sense of unity and commitment. Imagine what we could accomplish if even more of us pulled together. It completely amazes me how all of us were so willing to sacrifice so heavily of our personal time and our financial resources to reach this cherished calling and this cherished profession—yet we leave it to so few to protect and preserve it for ourselves and those who will follow us. We take so seriously our individual responsibility to our patients, but what of our individual responsibility to their destiny and our destiny? The same forces which brought us the mergers and acquisitions of the 1970s and the savings and loans of the 1980s have now arrived on the scene and are eager to bring us the new and revised healthcare system of the 1990s and on into the next century.

We have it in our hands to seriously influence the future. We have only to follow the roadmap of our past accomplishments, but the pace of change is ever increasing and the window of opportunity is closing. We must redouble our efforts to get involved. Respond to the calls from leadership. Don't leave it to others. Contribute funds faithfully to our COMPAC war chest so that we too can compete. I've seen what our concerted effort can do and has done during the past year and it's awesome! Thank you for the opportunity of serving you. I plan to continue to do so in the years ahead and I hope you'll join me.

CSMS PHYSICIAN PLACEMENT SERVICE

The Society maintains the Physician Placement Service as a *free* service to the medical profession, hospitals, and communities in Connecticut.

***Opportunities* should be typed, double-spaced copy on letterhead and submitted to CSMS, Physician Placement Service, 160 St. Ronan Street, New Haven, CT 06511 (203) 865-0587 or fax to (203) 865-4997. These will be published as space permits and will be distributed to physicians making inquiries of such *opportunities*.**

***Physicians wishing to locate* in Connecticut may call the office requesting opportunities in their specialty. Also, candidates are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.**

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

Announcements on the Physician Placement Service page under Classified Advertising are charged at the regular Classified Advertising rate.

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GENERAL PRACTICE

Position available for general practitioner with experience in emergency medicine, orthopedics and minor surgery, for medical center in Westport, CT. Flexible hours, excellent salary and pleasant work environment. Please call or forward C.V. to: Anthony T. LaMarca, M.D., 278 Post Road East, Westport, CT 06880, (203) 454-1043. (Jun/Jul)

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Available January 1996. Licensed in Michigan. American Board eligible in December 1995. M.D. at the Medical College of Jinan University, China. Internship and residency at Brookdale Hospital, New York. Would like to join a group, associates or institutional practice in neurology or internal medicine. Please respond to: K. William Seeto, M.D., 5162 East Hawthorne Pl., Tucson, AZ 85711. Telephone (520) 694-6000. (May/Jun)

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Available May 1995. Licensed in Connecticut. American Board eligible. M.D. at the University of Tabriz School of Medicine, Iran. Internship at Tabriz University General Hospital. Residency at Brookdale Hospital Medical Center, Brooklyn, New York. Would like to join a group, associates or institutional practice. Please respond to: Ishkhan Babajanian, M.D., 1500 Mission St., Box #1, Anadarko, OK 73005. Telephone: (405) 247-3744. (May/Jun)

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The Effects of Supercooling Chemicals on Myocardial Ultrastructure: A Transmission Electron Microscopy Case Study

NAEL A. AL-ABDULLA, B.Sc., GEORGE COLE, JR., M.D., JOHN H. BRAXTON, M.D.,
GEORGE V. LETSOU, M.D., WX LIU, M.D., RICHARD N. EISEN, M.D.,
AHMED EL-GAMEL, M.D., AND JOHN C. BALDWIN, M.D.

Abstract—Extended ischemia results in organ infarction which limits the availability of donor hearts. Hypothermic storage extends heart preservation by effectively stopping cellular metabolism, thereby preventing toxic accumulations of metabolic wastes and depletion of energy stores. However, cell swelling as a result of ion concentration changes and cell laceration due to ice crystal growth are consequences of hypothermic ischemia. Supercooling successfully preserves hearts for an extended time without associated myocardial necrosis.

The efficacies of four supercooling preservative solutions, containing hypertonic glucose, polyethylene glycol, and or winter flounder antifreeze protein, are assessed using the Langendorff isolated organ perfusion apparatus and transmission electron microscopy. Polyethylene glycol seems the most effective in preventing myocardial necrosis possibly by dehydrating, minimizing cellular ice formation, protecting against cell swelling, and functioning as an antioxidant. Hypertonic glucose seems the most effective in reducing cell swelling; it may also depress solution freezing points, bind water, adjust both intra- and extracellular osmolarities, stabilize proteins, and assist in adenosine triphosphate (ATP) production. Antifreeze protein seems to bind effectively to ice and inhibit its growth; it may also reduce membrane permeabilities to Ca^{2+} and K^+ ions.

Introduction

THE shortage of donor organs restricting the number of cardiac transplants relates to the limitations of ischemic heart preservation. Currently, a cardiac graft remains viable for up to four to six hours.[1,2] Within this four- to six-hour time limit, the heart must be harvested, preserved, immunologically tested, transported, and reimplanted. By extending ischemic cardiac preservation times, more donor hearts may be matched with recipients who wait long periods for cardiac transplants.[3]

Since the ischemic heart is deprived of blood supply, it suffers from anoxia, from lack of metabolic reactants, and from toxic accumulation of metabolic "wastes."[4,5,6] Reduced nicotiriamide-adenine dinucleotide (NADH) and proton concentrations increase as metabolites, especially ATP and glucose, are depleted. During anaerobic metabolism, excess lactate builds up. Waste accumulations may result in intracellular structural damage, especially in the mitochondria, and eventually cause infarction.[4,5,6] As the cell uses ATP without replenishing its supplies, ion transport channels such as the Na^+K^+ATPase and $Ca^{2+}Mg^{2+}$ATPase fail, causing severe osmolarity changes. These ischemically damaged heart cells undergo further injury upon reperfusion and, thus, reoxygenation.[4,7] Recontraction of the impaired muscle cells can result in

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contraction bands and also sarcolemmal and cellular membrane injury.[7]

If cellular metabolism can be interrupted while the heart is ischemic, then the cellular damage and possible necrosis associated with ischemia can be prevented. Hypothermia is one such method of slowing metabolism. As temperatures (T) decrease, activation energies (E) of cellular reactions increase, and, thus, reaction rates (K) are reduced:

$$K = c\, e^{-E/RT}$$

The equation contains the Boltzmann expression, where R is the gas constant; c is the equation constant. Thus, at low enough temperatures, metabolic reactions can come to an effective stop.[4,6,8]

However, cells contain 70% to 80% water by weight; subsequently, chemical problems arise as temperatures drop below 0°C. Ice begins to form in extracellular spaces. As the ice expands, it exerts pressure on cellular structures, tearing or breaking the structures. Furthermore, as extracellular ice grows, solutes are concentrated in the remaining (nonfrozen) extracellular solvent. Water diffuses out of cellular pores in order to equilibrate intra- and extracellular water concentrations.[3,9,10] According to Fick's Law for a thin membrane, cells will shrink in volume at a rate J_s when the extracellular solute concentration c_e is greater than the intracellular solute concentration c_i:[11]

$$J_s = P\, S\, (c_e - c_i)$$

The membrane permeability is P, the membrane surface area is S, and the solute concentration is c. From Fick's Law, we get the temperature dependent osmotic flow of water, stating that cells shrink in volume (v) as temperatures (T) decrease:[12]

$$-\,dv/dT = (\sigma ART/v)\ln(p_i/p_e)$$

The membrane surface area is A and the water's hydraulic conductivity caused by the osmotic gradient is σ. R is the gas constant and p_i is intracellular pressure and p_e is the extracellular pressure. However, ischemia is associated with extensive cellular influx of Na^+ and Ca^{2+},[13,14,15] increasing the extracellular pressure, p_e. With this large increase in p_e, cells will experience some degree of swelling instead.[7,16,17,18] The onset of necrosis is attributed to high cellular salt concentrations and or swelling in combination with ice crystal growth.[5,7,9,16,17]

Supercooling is a method of obtaining lower temperatures without crystal formation.[9,12] A solvent such as water may supercool down to -41°C.[19] Cryoprotective chemicals aid the preservation of cells by improving supercooling, colligatively depressing water fusion temperatures.[10] Low molecular mass chemicals can penetrate cellular membranes and assist in supercooling throughout the tissue and prevent intracellular dehydration by adjusting intra- and extracellular osmolarities and by depressing the freezing point.[10,20] Polymeric chemicals cannot penetrate into cellular spaces so they work by dehydrating extracellular regions and by containing or preventing ice crystal formation.[10,20,21,22]

Some animals which inhabit regions where temperatures reach subzero levels have adapted supercooling, freeze-regulation, or a combination of the two strategies in order survive. They may spend months at temperatures below-50°C.[5] These animals produce chemicals that maintain the appropriate conditions, prevention of ice-formation and adjustment of ion concentrations, to sustain life in the tissue when temperatures rewarm.[8,23] Their chemical strategies include the use of large concentrations of glucose and of antifreeze glycoproteins.[8,23,24,25,26]

Ion concentrations are essential to myocardial preservation.[27] Significant increases in intracellular Na^+ and Ca^{2+} ions cause destructive cellular swelling.[7,13,14,15,16,17] During reperfusion, Na^+ concentrations may further increase due to metabolic acidosis, where the excess protons exchange with Na^+ via the Na^+/H^+ exchange pathway.[28] An increase in intracellular Na^+ causes concentrations of Ca^{2+} to increase secondarily via the Na^+/Ca^{2+} exchange mechanism.[15] Excess intracellular Ca^{2+} ions are associated with increased ventricular diastolic tonicity and premature myocardial activation. Furthermore, energy stores become depleted as mitochondrial ATP synthesis is impaired.[13] As ATP depletes from the lack of adequate precursors to the generation of more ATP, the Na^+K^+ATPase transport channel stops functioning, further increasing intracellular Na^+ concentrations and extracellular K^+ concentration. K^+ ions also accumulate in extracellular spaces due to the Na^+ activated K^+ channel and the Na^+-K^+-Cl^- cotransport channel.[29,30] Increased K^+ concentrations are associated with vasospasm and myocardial-activity irregularities upon reperfusion.[31] Thus, ATP depletion is a cause of changes in ion concentrations.[13,28,29,30,32]

Our research is aimed to study the effects of several chemicals in supercooling solutions used for the 12-hour ischemic preservation of hearts at -4°C. The following chemicals are examined: glucose (hypertonic concentration), polyethylene glycol, and winter flounder antifreeze glycoprotein. We have chosen to study these chemicals because they are among the most common protectants found in animals which must survive subzero temperatures.[8,23,24,25,26] The effects of these chemicals on myocardial ultrastructure are assessed using transmission electron microscopy.

Methods

The four supercooling preservative solutions, as seen in Table 1, were as follows: 1) a high concentration glucose solution, 2) a polyethylene glycol (PEG, average molecu-

Table 1.—Comparative Chemical Analysis of Solutions

Component Concentration	*Solution* *Hypertonic Glucose*	*Polyethylene Glycol*	*Hypertonic Glucose with Polyethylene Glycol*	*Antifreeze Protein with Hypertonic Glucose*
Glucose	90.0g	0.0g	90.0g	90.0g
Polyethylene glycol	0.0g	50.0g	50.0g	0.0g
Antifreeze protein	0.0g	0.0g	0.0g	0.6g
Osmolarity (mOsmol/1)	864	339	870	864

lar weight 15,000 to 20,000 daltons) solution, 3) a hypertonic glucose with PEG solution, and 4) a winter flounder antifreeze glycoprotein type I (AFP) with hypertonic glucose solution. Only Sigma or Baker Analyzed reagent grade or better materials were used; the AFP is from A/F Protein, Inc., W. Newton, Mass. The preservative solutions were prepared in fresh double distilled water (1 liter) at least four hours prior to cardiectomy according to Table 2. After the solutes were dissolved, the preservative solution was placed in a refrigerator to achieve a temperature of 4°C and to allow the electrolytes and the pH to adjust. The pH was then corrected to physiologic pH, approximately 7.4, using drops of 2-hydroxypropionic acid.

Male Sprague-Dawley rats (250-350g) were used to assess the preservative abilities of the four solutions. Eight rat hearts were harvested for each of the four supercooling preservative solutions, using the improved technique developed by Ono and Lindsey;[33] one extra heart was harvested as a control. Each rat was anesthetized with sodium pentobarbital (40mg/kg). Once anesthesia and analgesia were achieved, a tracheotomy was performed and the rat was placed on a Harvard ventilator. The abdomen was opened and the anticoagulant, heparin (250 IU), was injected into the inferior vena cava. Median sternotomy was performed, followed by dissection of the great vessels. The heart was then flushed with 5mL of a hyperkalemic

Table 2.—Composition of Solutions Per Liter Water

Component	*Quantity (in grams)*	*Component*	*Quantity (in grams)*
Hypertonic Glucose		**Hypertonic Glucose with Polyethylene Glycol**	
Glucose	90.0	Glucose	90.0
ATP	0.5	PEG	50.0
KCl	0.3	ATP	0.5
$CaCl_2$	0.3	KCl	0.3
NaCl	6.54	$CaCl_2$	0.3
NaH_2PO_4	0.17	NaCl	6.54
$NaHCO_3$	2.1	NaH_2PO_4	0.17
$MgSO_4$	0.3	$NaHCO_3$	2.1
Mannitol	12.5	$MgSO_4$	0.3
Insulin	1 iu	Mannitol	12.5
		Insulin	1 iu
Polyethylene Glycol		**Antifreeze Protein with Hypertonic Glucose**	
Glucose	1.26	Glucose	90.0
PEG	50.0	Antifreeze Protein	0.6
KCl	1.04	MgATP	0.5
$CaCl_2$	0.016	KCl	1.0
NaCl	6.54	$CaCl_2$	0.3
KH_2PO_4	0.16	NaCl	6.54
Na-HEPES	1.3	NaH_2PO_4	0.17
$MgSO_4$	3.70	$NaHCO_3$	2.1
Mannitol	4.54	$MgSO_4$	0.3
		Mannitol	12.5
		Insulin	1 iu

Table 3.—Comparison of Results for Each Solution

	Hypertonic Glucose			*PEG*			*Hyper. Glucose with PEG*			*Hyper. Glucose with AFP*		
Rat #	*Elec A*	*Rhythm*	*Color*	*Elec A*	*Rhythm*	*Color*	*Elec A*	*Rhythm*	*Color*	*Elec A*	*Rhythm*	*Color*
1	+	QRS	–	+	NSR	+	+	NSR	+	–	–	–
2	+	QRS	–	+	NSR	+	+	NSR	+	–	–	–
3	+	VFib	–	+	NSR	+	+	NSR	+	–	–	–
4	+	VFib	–	+	NSR	+	+	NSR	+	–	–	–
5	+	VFib	–	+	NSR	+	+	NSR	+	–	–	–
6	+	VFib	–	+	NSR	+	+	VFib	+	–	–	–
7	+	VFib	–	+	NSR	+	+	VFib	+	–	–	–
8	+	VFib	–	+	NSR	+	+	VFib	+	–	–	–

*Elec A refers to electrical activity (+ refers to presence and – refers to absense).
Rhythm is categorized by normal sinus rhythm (NSR), only QRS complexes (QRS), only ventricular fibrillation (VFib), or no rhythm present (–). Color is categorized by erythematous (+) or nonerythematous (–).

preservative solution at 4°C retrograde through the aortic arch to serve as cardioplegia.[34] Six to 10 mL of one of the four supercooling preservative solutions was then perfused through the aortic arch.

The heart was then harvested. The aorta was transected first, followed by the pulmonary artery, the pulmonary veins, and the venae cavae. A small incision 4mm from the opening of the aorta was made to facilitate the storage of the heart. The temperature probe (Omega digital type T: Cu-CuNi) from the storage container was inserted through this opening. The heart was then suspended on the temperature probe and placed in the center of the storage container filled with preservative solution. A temperature reading was taken and the storage container was placed in a refrigeration bath (Cole-Parmer Polystat refrigerated circulator) at -4°C. The heart was supercooled for 12 hours.

After 12 hours, the storage container was removed and allowed to warm at room temperature until the heart reached 15°C. The heart was then placed on a Langendorff isolated perfusion apparatus.[35] The equipment used for the Langendorff preparation included a Cole-Parmer constant temperature circulator, a Cole-Parmer Masterflex peristaltic pump, Electronics for Medicine electrocardiogram and pressure monitors, and a Gould 4-channel recorder. The heart was perfused retrograde through the aorta using a Krebs-Henseliet buffer combined with 95% O_2 and 5% CO_2 (producing an O_2 tension of 600mmHg), to ensure proper pH and concentration of ions for physiologic activities. The buffer contained glucose 1g, $NaHCO_3$ 2.1g, KCl 0.3g, $MgSO_4$ 0.3g, NaCl 6.54g, NaH_2PO_4 0.17g, and $CaCl_2$ 0.3g in one liter of double-distilled water. The perfusion was performed at physiologic temperature, 37°C, maintaining a column pressure of approximately 90mmHg above atmospheric pressure. The EKG electrodes were

Table 4.—Comparison of Electron Microscopic Analysis

	Control	*Hypertonic Glucose*	*PEG*	*PEG with Hypertonic Glucose*	*AFP with Hypertonic Glucose*
Mitochondrial swelling	0	1	2	2	2
Flocculent densities	0	2	1	1	1
Cristae preservation	0	3	1	2	1
Mitochondrial membrane	0	3	0	2	1

0 = no swelling or densities, well-preserved cristae and membrane
1 to 3 = increasing grade of swelling and number of densities and decreasing degree of preservation of cristae and membrane

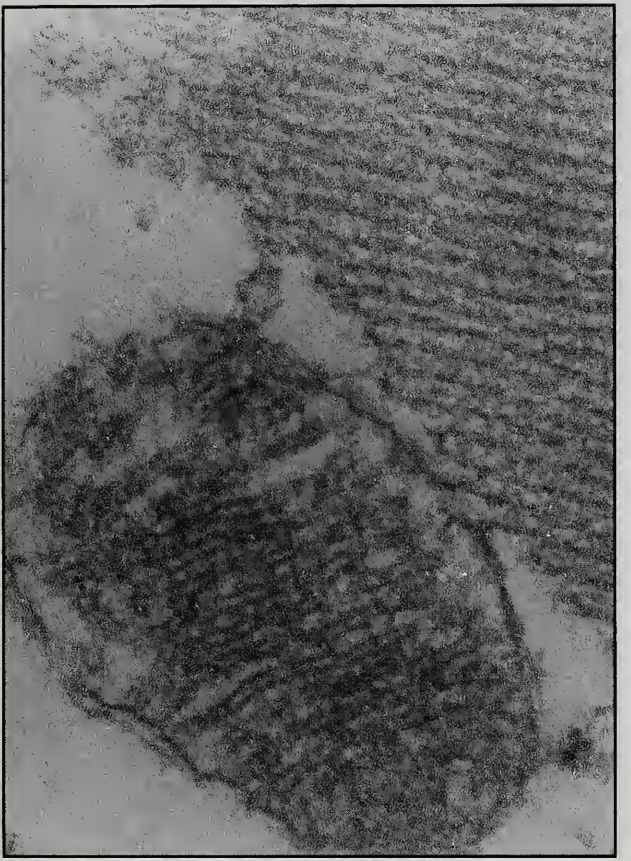

Figure 1.—Transmission electron micrograph of unpreserved control sample. Mitochondrion with myofibers (magnified 70k).

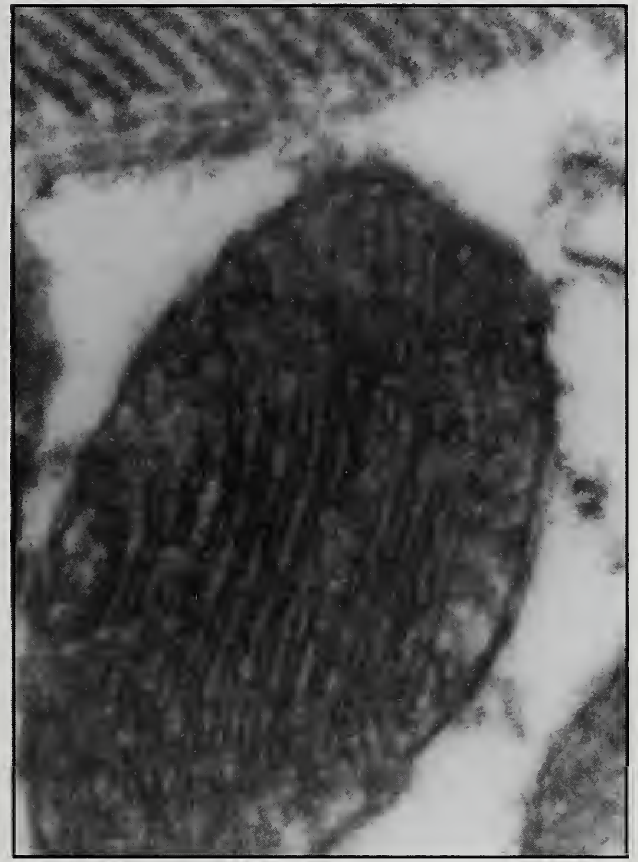

Figure 2.—Transmission electron micrograph of unpreserved control sample. Mitochondrion (magnified 100k).

placed on the heart. The hearts were assessed according to electrical activity (EKG), color, and contractions. The control heart was assessed using the Langendorff with prior supercooling or storage for 12 hours. (One of the AFP with hypertonic glucose hearts was preserved for 13 hours due to technical difficulties.)

Statistical analysis was performed using the χ^2 method to derive *P* values. For smaller groups, contingency table analysis yields a χ^2 with continuity correction *P* value. Hearts were compared for color (erythematous or non-erythematous), electrical activity (present, not present), and rhythm (normal sinus rhythm, only QRS complexes, only ventricular fibrillation, no rhythm present).

After assessing the hearts, one heart from each of the four groups and the control was placed in 10% formaldehyde to prepare it for transmission electron microscopy processing, according to a common process similar to that used by Nag et al.[36] The heart was sliced into 1mm cube samples and each sample was dehydrated and stained using the following procedures, making sure that each solution was filtered through 0.45 μm acrodisk micropore filters (Gelman Sciences) and that only EM grade materials are used. The sliced samples were washed three separate times for 10 minutes each in phosphate buffer solution (pH 7.4, $NaPO_4$ monobasic 2.4g, $NaPO_4$ dibasic 11.4g, NaCl 9.0g). The heart samples were then placed in a two percent osmium solution for one to two hours, slowly rotating. The heart samples were washed in 50% ethanol for 10 minutes, followed by 70% ethanol for 10 minutes, followed by uranyl acetate (98% uranyl acetate Polysciences 0.031g in 70% ethanol 3.13ml) for one hour taking extra precaution with the radioactive material. Washing and dehydrating continued by placing the heart in 70% ethanol for 10 minutes, then 90% ethanol for 20 minutes, then 100% ethanol for 15 minutes, repeating the last step two more times. When dehydration was complete, the samples were washed with propylene oxide under a hood, twice for five minutes each time, and then placed overnight in a 1:1 solution of propylene oxide and epon, a plastic embedding resin (Electron Microscopy Sciences). Afterwards, each heart sample was placed in a pure epon solution and baked at 60°C (Omega oven) for 24 hours. The plastified samples were sliced to 89nm using a Reichart Ultramicrotome (specimen grids from Electron Microscopy Sciences) and stained using lead citrate (lead citrate 0.1g, 10 N NaOH 0.5mL, ddH_20 50mL) then analyzed under a Phillips Instruments 201 transmission electron microscope.

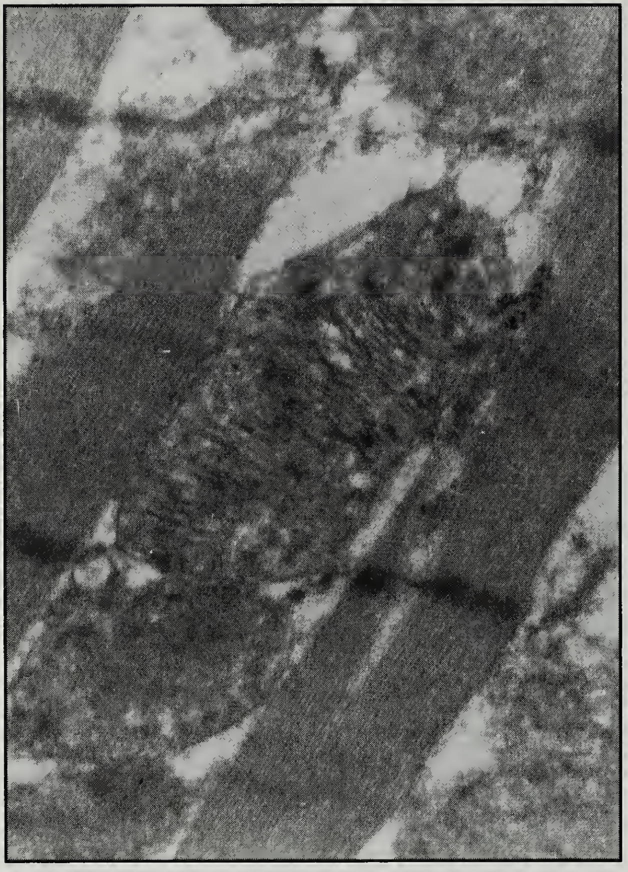

Figure 3.—Transmission electron micrograph of hypertonic glucose sample. Mitochondrion with myofibers (magnified 45k).

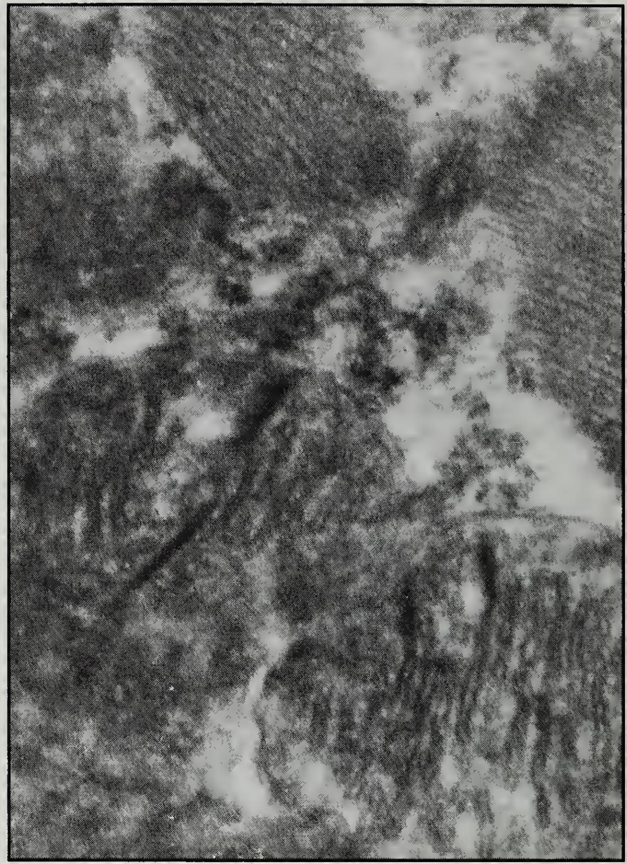

Figure 4.—Transmission electron micrograph of hypertonic glucose sample. Cellular untrastrucure (magnified 70k).

Results

The hearts in each group were assessed using the following criteria: electrical activity (EKG); color; and contractions. The results are summarized in Table 3. Tissue was then examined under electron microscopy. All hearts preserved using hypertonic glucose, PEG, and PEG with hypertonic glucose solutions showed electrical activity by EKG. All hearts preserved using AFP with hypertonic glucose showed no electrical activity by EKG.

Hearts in the hypertonic glucose group were unable to achieve a normal sinus rhythm. Two hearts in this group produced occasional slow QRS complexes, while the remaining six hearts were in ventricular fibrillation. No hearts in this group sustained visible contractions.

Hearts in the PEG group had better electrical results. Each heart immediately went into visible ventricular fibrillation upon Langendorff perfusion. Within minutes, each heart achieved normal sinus rhythm with QRS complexes. All four chambers showed excellent visible contractions.

Hearts in the PEG with hypertonic glucose group showed mixed results. Each heart produced electrical activity and five of the eight hearts developed some QRS complexes and brief normal sinus rhythm. The five hearts that produced the best results with this group developed mild nonsustained contractions.

Hearts in the AFP with hypertonic glucose showed poor results. No electrical activity at all was visible. The hearts were assessed as nonviable.

The color of the hearts before Langendorff perfusion varied between the groups. In the hypertonic glucose group, the hearts had a pale or blanched appearance. In contrast, hearts in the PEG group were more erythematous, having the appearance and texture, after 12 hours of preservation, of freshly harvested hearts. In the PEG with hypertonic glucose, the five hearts that produced some visible contractions were erythematous, similar to those in the PEG group, while the remaining three hearts were pale or blanched. Hearts in the AFP with hypertonic glucose group were pale and nonerythematous; furthermore, two of the hearts were especially blanched, one of which showed some blue colorations.

Statistical analysis of the results produced the following results: $P = .0005$ when the hypertonic glucose and PEG solutions were compared for color results; $P = .031$ when the hypertonic glucose and PEG with hypertonic

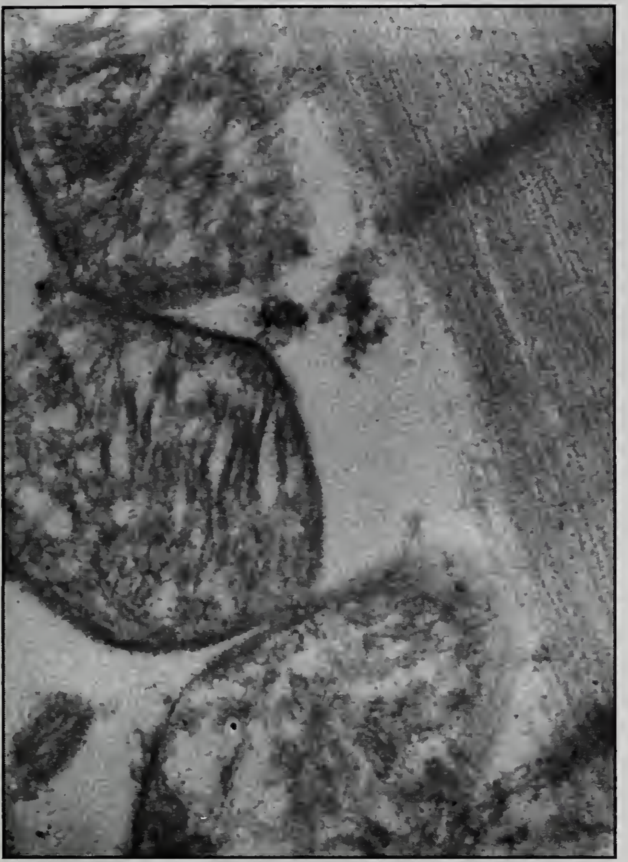

Figure 5.—Transmission electron micrograph of PEG sample. Mitochondrion with myofibers (magnified 45k).

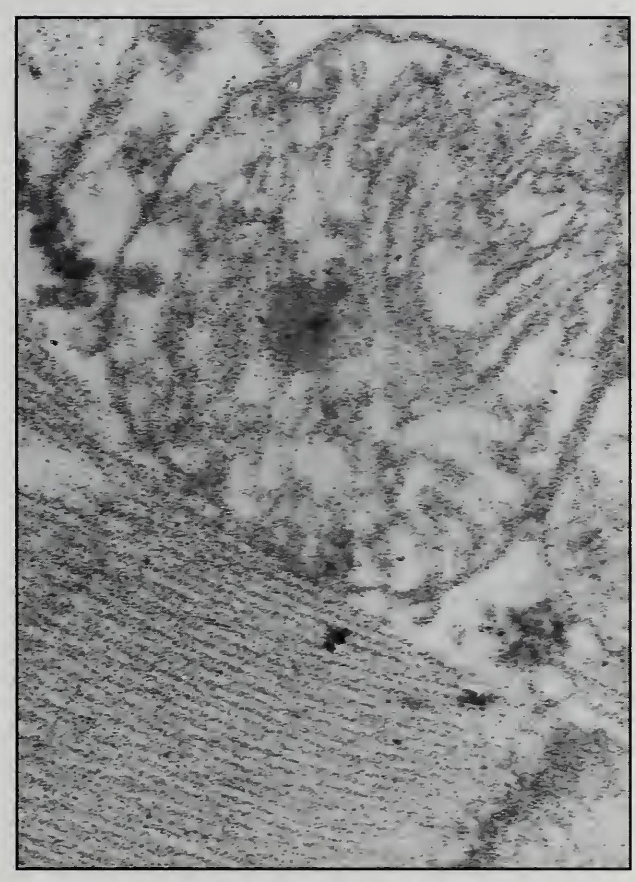

Figure 6.—Transmission electron micrograph of PEG sample. Mitochondrion with myofibers (magnified 70k).

glucose solutions were compared for color results; $P = .031$ when the PEG and PEG with hypertonic glucose solutions were compared for color results; $P = .0005$ when the PEG and AFP with hypertonic glucose were compared for color results; and $P = .031$ when the PEG with hypertonic glucose and AFP with hypertonic glucose were compared for color results. There was no difference in color between the hypertonic glucose and AFP with hypertonic glucose solutions when compared for color results.

When the hypertonic glucose and PEG solutions were compared for EKG results (without continuity correction), $P = .0005$; $P = .02$ when the hypertonic glucose and PEG with hypertonic glucose solutions were compared for EKG results (without continuity correction); $P = .0003$ when the hypertonic glucose and AFP with hypertonic glucose solutions were compared for EKG results (without continuity correction); $P = .20$ when the PEG and PEG with hypertonic glucose solutions were compared for EKG results; $P = .0005$ when the PEG and AFP with hypertonic glucose were compared for EKG results; and $P = .0003$ when the PEG with hypertonic glucose and AFP with hypertonic glucose were compared for EKG results (without continuity correction).

When the AFP with hypertonic glucose was compared with each of the other solutions individually for electrical activity results, $P = .0005$. Three of the solutions (PEG, hypertonic glucose, and hypertonic glucose with PEG) all showed the presence of electrical activity.

Preliminary analysis of electron microscopy samples were performed by a blinded pathologist. These results are summarized in Table 4. Detailed analysis was conducted using the control as a reference and compared with published myocardial electron microscopy analysis.[37,38,39,40,41,42,43,44] Overall cellular architecture, including myofilaments, appeared fairly preserved in the hypertonic glucose sample. Mitochondrial changes, however, were prominent. The mitochondrial matrix appeared amorphous and dense with flocculent densities. The cristae were largely disrupted and disorganized. Some mitochodrial membrane lysis and disruption seems to have occurred along with myofibrillar lysis. The hypertonic glucose sample showed a minor increase in cytoplasmic edema fluid and the least swelling of the preservative samples.

The PEG solution produced the best overall cellular preservation in this experiment. Myofibers were intact, as well as the mitochondrial membrane. The cells as well as

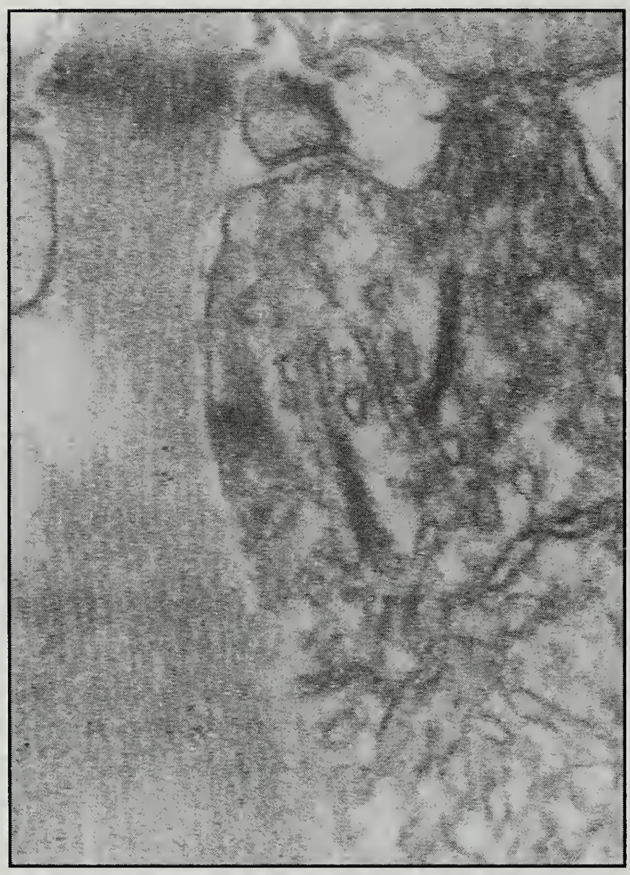

Figure 7.—Transmission electron micrograph of hypertonic glucose with PEG sample. Mitochondrion with myofibers (magnified 70k).

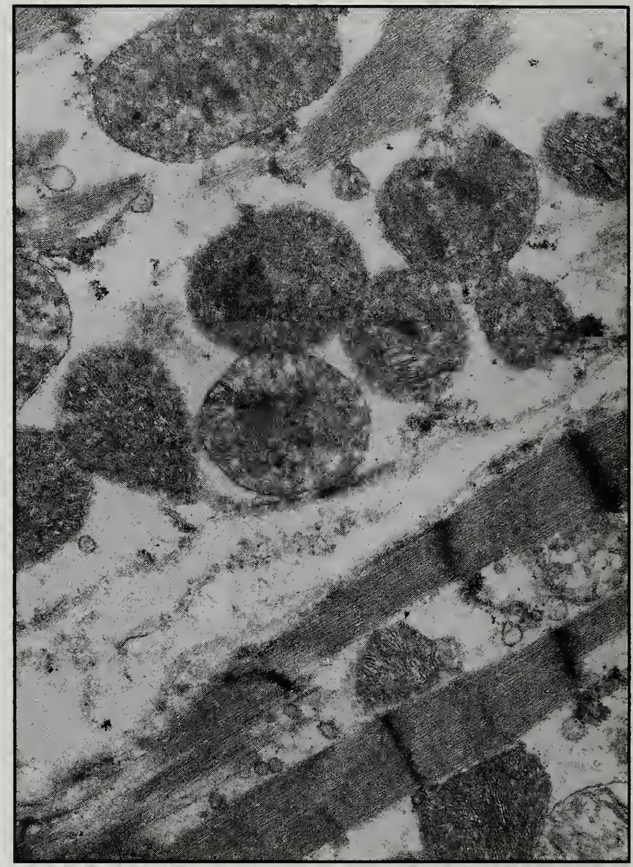

Figure 8.—Transmission electron micrograph of hypertonic glucose with PEG sample. Cellular ultrastructure (magnified 20k).

the mitochondria experienced mild to moderate swelling. The cristae, however, were relatively intact. Flocculent densities were rare.

The hypertonic glucose with PEG-treated sample was poorly preserved. A moderate increase in cytoplasmic edema fluid was visible. The sarcolemma were disrupted in places. The mitochondria were swollen and sometimes lysed. Severe disruption and disorganization of the cristae prevailed and a moderate number of small mitochondrial matrix flocculent densities were present.

The AFP with hypertonic glucose-treated sample revealed ultrastructural preservation different from the other samples. Edema fluid was present in slight quantities. The external morphology of the mitochondria were well preserved. The mitochondria were moderately swollen, separating relatively preserved and ordered cristae. No matrix flocculent densities were seen.

Discussion

The chemical requirements for supercooling preservation of hearts remain to be determined. Other researchers have studied animal freeze-tolerance and supercooling to find clues to optimize hypothermic solutions for ischemic organ preservation.[8,23] Numerous chemicals and other factors are involved in finding a successful supercooling preservative solution.[45]

From the Langendorff isolated perfused heart model, the following conclusions can be determined with statistical validity. PEG was the most effective preservative, as hearts in this group performed well, with normal sinus rhythms and visible chamber contractions. PEG with hypertonic glucose was the second most effective preservative solution, as five of eight hearts developed brief normal sinus rhythms, some QRS complexes, and mild nonsustained contractions. The hypertonic glucose was a fair preservative, as hearts in this group showed no normal sinus rhythms or contractions. Two of eight hearts produced occasional slow QRS complexes and six of eight hearts developed ventricular fibrillation. The AFP with hypertonic glucose solution was ineffective; no electrical activity in the hearts was visible.

It is important to recognize that many chemical variables affect the way the main components (hypertonic glucose, PEG, and AFP) interact in preservative solutions. Depending on the composition of the solutions, the main components may achieve a higher degree of efficacy in

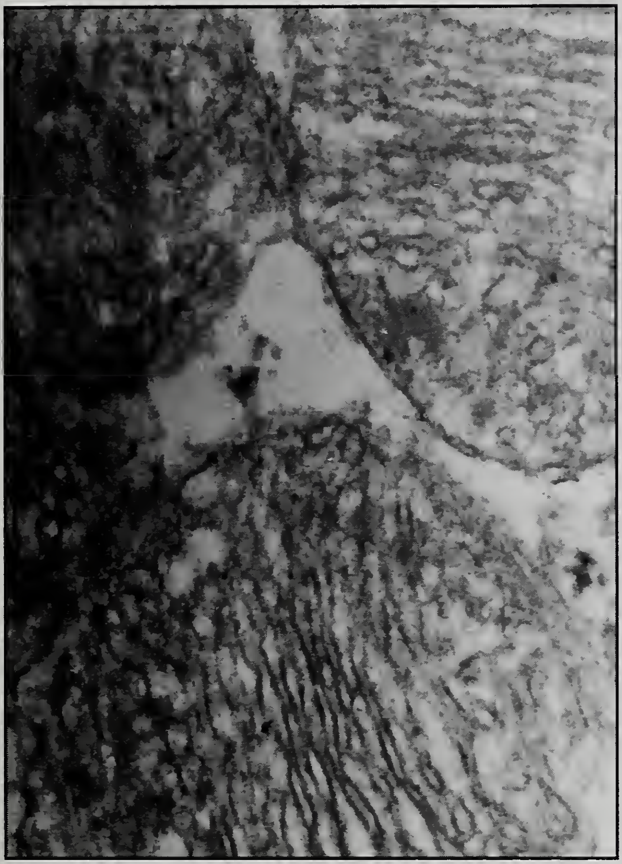

Figure 9.—Transmission electron micrograph of AFP with hypertonic glucose sample. Mitochondria (magnified 70k).

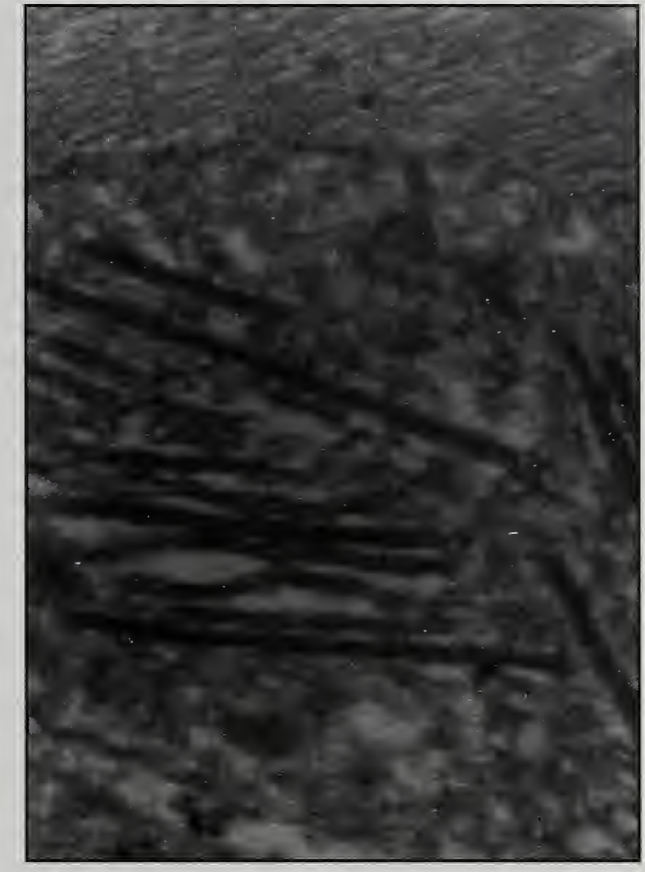

Figure 8.—Transmission electron micrograph of AFP with hypertonic glucose sample. Mitochondrion (magnified 70k).

preserving myocardial ultrastructure. Our research group has recently shown that hypertonic glucose with MgATP is the most effective preservative solution found to date.[46]

Evaluation by the Langendorff preparation resulted in statistically valid analyses of the supercooling solutions used in this experiment. However, the Langendorff is a limited model. Complications of vasodilation and tissue edema commonly occur.[47,48] Heterotopic transplant of the hearts, or the transplantation of the heart from one rat into the abdominal inferior vena cava and aorta of another rat following preservation, in conjunction with electron microscopy may be a more physiologically valid method for evaluation of the protective abilities of the solutions.[33,46]

The electron microscope results may help to understand why chemical hypothermic protectants are effective in preserving hearts and allowing them to develop normal sinus rhythms and chamber contractions upon reperfusion. The electron microscopy in combination with the Langendorff perfusion results revealed that the hypertonic glucose solution was a fair preservative of myocardial cells. Glucose, as a low molecular weight solute, works primarily by colligatively reducing the freezing point of solutions, minimizing ice crystal formation.[49] However, it also works by reducing the quantity of free water. Bound water occurs as a result of the water molecules hydrogen bonding to biocolloids or engaging in hydration interactions with solutes, such as glucose. Bound water cannot act as a freezable solvent. Glucose concentrations are effectively increased as the quantity of free water decreases, resulting in a further reduction of ice crystal formation through increased effective colligative interactions.[5,12,49]

Furthermore, glucose has important consequences in supercooling living tissues. As anaerobic fuel, high glucose concentrations allow ATP production to continue isochemically until temperatures are low enough to increase activation energies beyond metabolic thresholds.[5,26] Due to its ability to interact with water and cellular material, glucose has an effect on the structuring and destructuring of proteins, enzymes, and lipids.[5,50,51] The chemical potential of a solution (μ_A) decreases from its original level (μ_A*) as the solute (glucose) concentration (x_A) increases, according to Raoult's law, where R is the gas constant and T is the temperature:

$$\mu_A(l) = \mu_A(l)^* + RT \ln x_A$$

Electrodynamic and van der Waal interactions between lipids are affected and at certain concentrations may either increase or decease, causing the lipids to either swell or shrink depending on specific conditions.[51] The addition of the glucose to the solution also increases the chemical potential of both the sugar and the protein structures, and enzymes, in the cells. The proteins become stabilized since denaturation would increase their surface area with respect to the solvent and thereby be thermodynamically unfavorable, having a high chemical potential molecule in more contact with a solvent with lowered chemical potential.[50]

The electron microscopic analysis of the specimen preserved in hypertonic glucose solution showed that the solution was effective in hypothermic preservation. Figs. 1 and 2 show the electron micrographs of the control and Figs. 3 and 4 show the electron micrographs of the specimen preserved in hypertonic glucose. The glucose adjusted intra- and extracellular osmolarities to prevent damaging cellular swelling. The hypertonic glucose sample exhibited the least cell swelling of the preservative solutions. This result was highly significant, as cell swelling correlated directly with cell death.[5,7,9,16,17] By reducing ice formation and by creating a hypertonic state (820 mOsmols/L) both intra- and extracellularly, glucose may prevent major changes in ion concentrations from physiologic tonicity (300 mOsmols/L). Reduced cell swelling and slight increase in edema fluid may be attributed to glucose. However, formation of some smaller ice crystals may have occurred, since some mitochondrial membrane and myofibrillar lysis is visible. Glucose's low molecular weight may not be fully effective in blocking some of the crystal formation.

Additionally, the preserved cells may have undergone "inapproriate" metabolism upon reperfusion and reoxygenation, due to ice-damaged cellular structures. Pentalaminate membranes are a consequence of partial metabolism and ionic insufficiencies[37] and the amorphous matrix flocculent densities are Ca^{2+} and PO_4^{3-} accumulations due to ATP depletion and ion insufficiencies causing uncoupling of mitochondrial oxidative phosphorylation.[38] Glucose does, of course, provide fuel for anaerobic respiration, which creates an excess of lactate, unfavorable for the functioning of cells and possibly damaging the mitochondria.[5,6,26]

PEG, a large molecule, acts as a nonpenetrating hypothermic protectant. It depresses the freezing point of water more than merely by colligative properties.[52] As with glucose, PEG increases the concentration of bound water, acting as unfreezable solvent.[52,53] PEG dehydrates and minimizes ice-crystal formation, protecting against increased cytoplasmic edema fluid and against cell swelling.[54,55] PEG reduces cell swelling as it cannot penetrate intracellularly so it increases external osmolarities causing excess water to be removed from internal regions; therefore, its freezing point depression efficacy (effective osmotic activity), as reviewed by Banker et al, may be up to 100 times that of molar equivalents of NaCl.[18,54,56,57,58]

PEG also has biochemical activities. As PEG binds water, it raises the transition temperatures of intracellular lipid bilayers[53,59] and as PEG decreases the polarity of the aqueous phase, water, it perturbs structural membranes.[60] PEG reduces the surface potential of phospholipid membranes[61] as it both creates structural changes in the solvent water phase and interacts with the polar heads of the phospholipids.[53,61] Membrane fusion and membrane permeability to ions, especially Ca^{2+}, are a consequence of reduced surface potential and structural changes in water bulk-phase.[53,61,62] PEG plays an important role in maintaining cell structural integrity by preventing cell swelling through its binding to the phospholipids in a 1:12 mole ratio (PEG:phospholipid) and physically inhibiting changes in cell structure and consequently volume.[16] As an antioxidant, PEG prevents structural damage to the phospholipids due to peroxidation, by suppressing the availability to the phospholipids of the oxygen-free radicals derived from ischemic metabolism or by scavenging the hydroxyl radical initiators of peroxidation.[63] Wicomb et al communicate the theory that these stablilization mechanisms of lipid bilayers decreases their permeability to ions.[64] Furthermore, as a large molecular weight molecule, PEG protects proteins and enzymes through steric hindrance stabilization by its preferential exclusion from binding to the protein surface causing thermodynamic stabilization and protection from ice formation.[65]

Electron microscopic analysis of the PEG-preserved heart (Figs. 5 and 6) reveal a relative effect in reducing cell swelling through its effective extracellular osmolarity and phospholipid membrane interactions. The mitochondria experienced moderate swelling, which may be a result of reperfusion water entry. The relative lack of edema fluid may be a positive consequence of PEG's dehydrating and membrane stabilization influences. Myofibers and mitochondrial membranes were effectively stabilized. The mitochondrial cristae were ordered and little disturbed. PEG may have prevented formation of ice crystals, including smaller ice crystals which may spread into smaller areas and accumulate around mitochondrial cristae, eventually damaging the cristae.[18,54,56,57,58]

The lack of reperfusion injury may be a result of stabilized membranes and little ischemic injury. Since pentalaminate membranes were observed focally, and since flocculent densities were nearly nonexistent, it may be assumed that little ischemic metabolism occurred. Since the mitochondrial phospholipids were primarily intact, PEG may be assumed to be effective in preventing peroxidation. Preservation of myocardial ultrastructure enabled the hearts preserved in this group to resume normal sinus rhythm following 12- hour ischemic hypothermia.

For the hypertonic glucose with PEG solution-treated sample, the effects of hypertonic glucose may have prevailed over the effects of PEG. Because glucose concentrations (0.5 moles per liter) greatly exceeded PEG concentrations (0.00625 moles per liter), the osmotic effects of glucose could have overridden the effective extracellular osmotic effects of PEG. Glucose is able to penetrate cell membranes and potentially concentrate in intracellular regions in order to balance out the osmotic effects of PEG. Since PEG's ability to reduce cell swelling is diminished, the electron microscopic analysis (Figs. 7 and 8) shows swollen mitochondria in conjunction with minor cytoplasmic edema fluid. A mild increase in cytoplasmic space may be associated with reperfusion and influx of water. Disrupted sarcolemma and occasional lysed mitochondria may have resulted from the formation of smaller ice crystals able to spread into smaller areas. PEG may not have prevented the formation of all the ice crystals, since its effects on osmolarity and possibly on binding water, dehydrating, and stabilizing phospholipids were negated by the hypertonicity of glucose. Severe disruption and disorganization of the cristae may be a further consequence of osmotic irregularities, crystal formation, and the inability to stabilize membranes. As with the hypertonic glucose solution, the cells may have undergone ischemic metabolism or poor metabolism upon reperfusion. As glucose provides fuel for anaerobic metabolism, the inability to remove lactate during ischemia may cause further mitochondrial damage.[5,6,26] As with the hypertonic glucose-treated sample, flocculent densities and pentalaminate membranes were observed. These densities and pentalaminate membranes may derive from partial metabolism and can cause injury, possibly irreversible, to the mitochondria, as seen in our electron microscopic analysis.[37,38]

AFP and hypertonic glucose are among the main chemical protectants that some animals, such as some species of frogs and fish, use to survive subfreezing temperatures.[8,23] Winter flounder AFP (3500 daltons) is an alanine-rich 37-chain amino acid sequence.[24,66] Several hydrophillic, polar, amino acids, including threonine, are interspersed along with the hydrophobic alanines, making the AFP amphiphilic.[24,25,66,67] AFP forms an a-helix, which allows the threonine, spaced every 11 amino acids, to bind specifically to water. The hydrogen-bonding threonine repeats every 1.65 nm, matching the repetitious spacing of H_2O molecules in ice.[22,25,66,67] Furthermore, these threonines also occur along the same side of the a-helix, causing the AFP to preferentially bind to ice.[66,67] As AFP binds to ice, its a-helix protein structure induces curvature in the interface between water and ice.[25] This induced curvature raises the free energy required in order to continue ice crystal formation.[25] From Kelvin theory, the Gibbs free energy (G) is related to surface tension γ and area (A) according to:[68]

$$dG = \gamma \, dA$$

As the surface area between the ice and water increases due to interfacial curvature, the Gibbs free energy required to continue ice formation increases and reaches a threshold above which ice formation stops.[25,68] Therefore, AFPs can inhibit ice-crystal growth in dilute solutions.[25,69,70] Knight et al suggest that concentrations as low as 0.5mg per mL can inhibit crystal growth on prism faces.[25] As a large molecule, AFP works primarily extracellularly, and, in combination with ice prevention by hypetonic glucose, ice formation may be extremely limited, if at all present.

In addition to this freezing point hysteresis, AFPs potentially have an effect on biological membranes. AFPs may preferentially bind to lipid bilayer membranes and stabilize them by restoring membrane potentials up to physiologic levels;[70,71,72] however, the winter flounder AFP (MW 3500 g/mol) used for this experiment may be ineffective in this role.[72] However, more significantly, AFPs reduce membrane permeabilities to Ca^{2+} and K^+. The mechanism for this effect may be an AFP-protein interaction, whereby Ca^{2+} and K^+ channels are blocked, producing complete effect with a concentration as little as 0.5mh/mL. Consequently, AFPs prevent damaging cellular influx of Ca^{2+} and efflux of K^+ during hypothermic ischemia.[73,74]

Electron microscopic examinations of the AFP with hypertonic glucose-treated sample (Figs. 9 and 10) revealed mild cell swelling. Cytoplasmic edema fluid was unnoticable as a result of the osmotic activity of hypertonic glucose and the ice-crystal prevention of AFP. Cellular ultrastructure was well preserved, reflecting the AFP effect on inhibiting ice crystal growth which disrupts ultrastructure. Because of the hypertonic state created by the glucose solution, cellular ions, found in significantly lower concentrations, did not experience the osmotic gradients typically caused by ischemia. Therefore, ion concentrations may have been properly maintained by the hypertonic glucose, limiting myocardial injury. No matrix flocculent densities occurred from a buildup of Ca^{2+} and PO_4^{3-}, as AFPs prevent the influx of Ca^{2+} and efflux of K^+. Little can be discerned about any possible effect of AFPs on stabilizing phospholipid membranes, especially since the effect of AFPs is primarily extracellular. The cristae were relatively well preserved in this group, although there was moderate mitochondrial swelling.

Despite the ability of AFP to preserve the ultrastructure, the hearts in this group failed to function. Since AFPs block Ca^{2+} and K^+ channels during hypothermic ischemia, if they are not removed upon reperfusion, they will continue to block these channels, which then become essential to maintaining cellular homeostasis and proper metabolism. The lack of electrical activity and, thus, any contraction despite the high degree of ultrastructural preservation may be a direct consequence of inhibition of membrane permeabilities to Ca^{2+} and K^+ ions.

Conclusion

The results show that cardiac preservation at -4°C for 12 hours is feasible. The three supercooling chemical protectants afforded protection of ischemic myocardial ultrastructure. Within the limited scope of this experiment, the PEG solution was the most effective in preventing myocardial injury and appeared to yield the best functional results. PEG dehydrates, minimizes cellular ice formation, and protects against cell swelling by adjusting extracellular osmolarity. It may also work as an antioxidant. The hypertonic glucose solution was the most effective in reducing cell swelling. Hypertonic glucose depresses solution freezing points and binds water. It adjusts both intra- and extracellular osmolarities. Additionally, hypertonic glucose stabilizes proteins and assists in ATP production. The AFP appears effectively to bind to ice and inhibit its growth. AFP also reduces membrane permeabilities to Ca^{2+} and K^+ ions, which may have beneficial consequences during hypothermia but harmful consequences if it is not removed prior to reperfusion.

The lack of complete efficacy of the solutions for myocardial preservation may be a result of component concentration problems. Dose-response curves should be developed to analyze the solutions and their components. The solutions used were developed by different researchers with specific rationales, so the compositions of the solutions varied widely, not just in terms of primary "protectant." The ion concentrations varied between the solutions. More importantly, the inclusion of ATP or MgATP varied, potentially affecting the results, as it provides demonstrably useful energy for cells during ischemia prior to hypothermia and during reperfusion. Therefore, it may be effective in preserving membrane integrity. Our laboratory has performed experiments which show that hypertonic glucose using MgATP is extremely effective for the 12-hour preservation of rat hearts at -4°C. Normal sinus rhythm was achieved in 100% of the hearts and vigorous contraction in 90% of the hearts using the hypertonic glucose with MgATP preservative solution.[46]

Supercooling chemicals successfully preserve cellular ultrastructure. By studying their mechanisms of preservation, we may ultimately find an optimal solution for extending preservation times for donor hearts.

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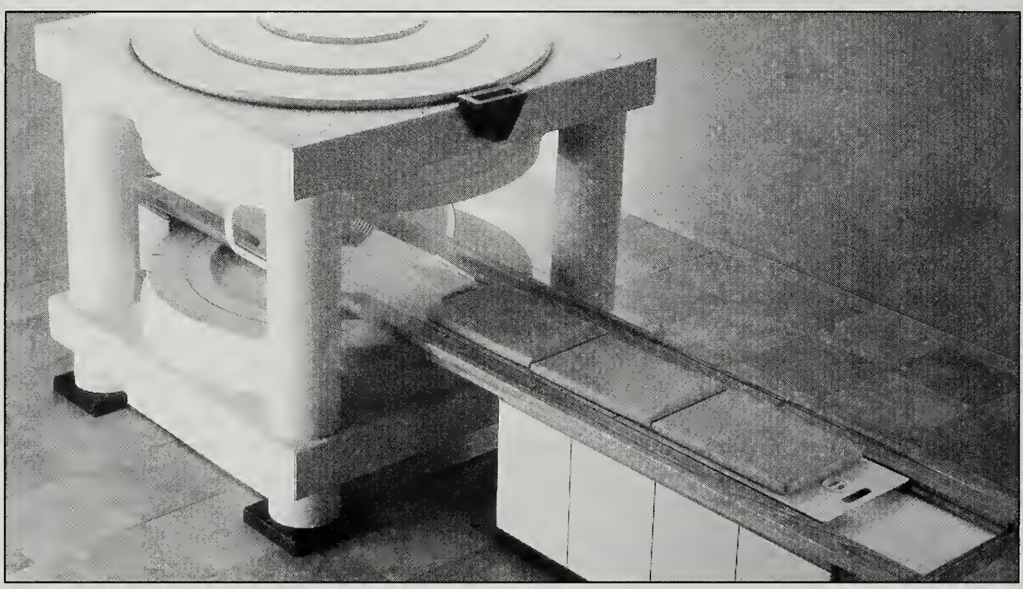

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New Frontiers in Myocardial Protection: Harnessing the Heart's Endogenous Protective Systems

DANIEL T. ENGELMAN, M.D.

Abstract—Researchers have continued to search for therapeutic agents to protect the heart during ischemia and reperfusion. Recent studies have suggested that harnessing the heart's endogenous systems for self-preservation may provide improved protection from ischemic injury. Two such phenomena, preconditioning and heat-shock protein synthesis, have been shown to uniformly reduce myocardial damage. This review highlights the newest research in myocardial protective strategies and suggests avenues of future investigation.

"The administration of certain non-specific damaging substances leads to the production of 'metabolites' which increase the resistance of the organism against various diseases."[1]

Weichardt, 1936

Introduction

FIRST proposed almost 60 years ago, there has been a recent resurgence of interest in modalities which upregulate an organism's endogenous protective systems against external stress. Cardiovascular research laboratories have been specifically searching for improved methods to protect myocardium against various forms of ischemia. The heart may be subjected to life-threatening ischemia during the course of angioplasty and open-heart surgical procedures. Donor hearts may undergo an extended period of ischemia while being transported prior to transplantation procedures. And patients with chronic angina have intermittent ischemic episodes that may jeopardize viable myocardium and result in infarction. Conventional techniques for myocardial protection have focused on nitrate therapy, thrombolytic/anticoagulation therapy, beta-adrenergic and calcium channel blocking agents, oxygen radical scavenging agents, and hypothermic/hyperkalemic cardioplegic solutions. While these extracellular interventions have facilitated salvage of marginal myocardium and allowed the performance of increasingly complex invasive procedures, researchers are now exploring novel intracellular approaches to improve myocardial protection against the consequences of ischemia and reperfusion injury.

The Preconditioning Phenomenon: Early Intracellular Adaptation

In 1984 it was first reported that short repetitive coronary artery occlusions were not associated with decreased adenosine triphosphate (ATP) levels in canine hearts.[2] This implied that some unknown endogenous protective mechanism was preventing detrimental ischemia-induced high-energy phosphate loss. This phenomenon, termed ischemic preconditioning, was characterized by Murry and colleagues in 1986 when he noted that brief periods of ischemia and reperfusion made the heart more resistant to a subsequent longer duration of ischemia.[3] "Classical ischemic preconditioning" was demonstrated to reduce infarct size in dogs, pigs, and rabbits when a short coronary artery occlusion preceded a prolonged coronary occlusion.[4] It was also shown that preconditioning decreases myocardial stunning[4] (reversible contractile dysfunction associated with normal perfusion) and arrhythmias[5] during reperfusion of ischemic myocardium.

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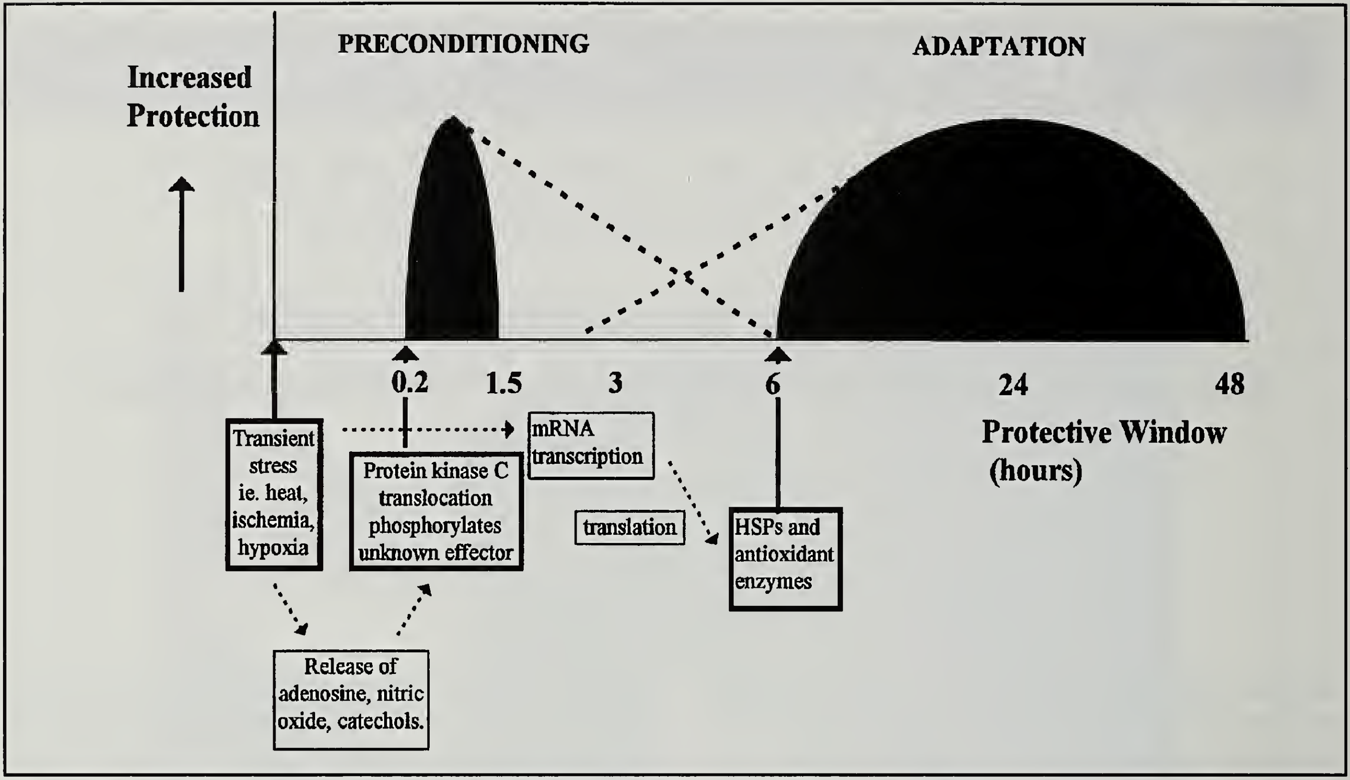
PRECONDITIONING
ADAPTATION
Increased Protection
0.2
1.5
3
6
24
48
Protective Window (hours)
Transient stress ie. heat, ischemia, hypoxia
Protein kinase C translocation phosphorylates unknown effector
mRNA transcription
translation
HSPs and antioxidant enzymes
Release of adenosine, nitric oxide, catechols.

Figure 1.—Proposed mechanism for two-stage intracellular response to stress in hearts. The dashed line indicates variability due to temperature, species, and the inducing stress.

The preconditioning phenomenon can be induced by a variety of stimuli other than ischemia. We have recently demonstrated that a brief hypoxic perfusion can substitute for ischemia as a preconditioning stimulus and improve functional recovery following global ischemia in an isolated working rat heart.[6] Calcium,[7] adenosine agonists,[8] α_1-adrenergics,[9] muscarinic agonists,[10] acidosis,[11] and stretch,[12] have each also been used to induce a tolerance to a subsequent ischemic episode. Preconditioning has been recognized as the most powerful and reproducible method to protect myocardium from ischemia and reperfusion injury.[13]

Mechanisms.—The mechanism(s) underlying the preconditioning phenomenon has not been clearly elucidated. Reduced ATP utilization,[14] lactate dehydrogenase release,[15] and calcium overload[6] have each been documented in preconditioned hearts. Recent work in our laboratory has suggested that preconditioning may be mediated through a preservation of endogenous antioxidants.[15] This enhanced antioxidant reserve is then able to retard the damaging effects of oxygen derived free radicals generated during ischemia and reperfusion. However these beneficial effects may be merely the results of improved myocardial protection, rather than the underlying mechanistic mediators. The widely held "adenosine hypothesis" for preconditioning states that during brief ischemia the activation of adenosine A_1 receptors couples to a G protein and through second messenger pathways causes the translocation of protein kinase C from the cytosol to the membrane, phosphorylating an unidentified protein that mediates protection.[13,16] However, this theory has been disproven in rat hearts,[17] where an α_1-adrenergic, rather than an adenosine A_1 receptor mechanism has been proposed.[18]

It has also been suggested that nitric oxide (NO) may function as an endogenous cardioprotective mediator of preconditioning.[19] NO, synonymous with endothelium-derived relaxing factor, is a naturally occurring, continuously released, vasoactive agent which controls coronary vascular tone.[20,21] It is synthesized by the vascular endothelium through the conversion of L-arginine to L-citrulline by the enzyme NO synthase.[22] Enhanced NO release during ischemia and reperfusion has resulted in improved myocardial function.[23] However, conflicting data exist regarding the role of NO in preconditioning.[24]

Preconditioning in Humans.—Many studies have suggested that preconditioning may occur in humans. Angioplasty studies have demonstrated decreased ST segment shift and lactate production with repeated coronary artery balloon inflations.[25] It has been shown that previous angina confers a beneficial effect after acute myocardial infarction.[26] Intermittent aortic-cross clamping during coronary artery bypass procedures may also precondition the heart.[27] Finally, isolated diseased human ventricles have been found to retain the ability to be preconditioned in an *in-situ* model.[28]

The Heat-Shock Proteins: Late Intracellular Adaptation

Studies of the heat-shock response began in 1962 with the description of a new set of heat-induced puffing patterns on the salivary gland chromosomes of a fruit fly.[29] In 1973 it was reported that the induction of these puffs coincided with the synthesis of a small number of new proteins, now referred to as heat-shock proteins (HSPs).[30] It is now known that synthesis of this group of proteins is a universal response to stress. They have been induced in all organisms studied, from bacteria to man, yeast to soybeans, after exposure to environmental stresses such as heat, ischemia, and hypoxia.[31] Most importantly, these proteins have been found to protect cells from the adverse effects of stress.

Mechanisms.—Heat-shock proteins may protect cells from ischemia and reperfusion injury by acting as molecular chaperones. They appear to function by mediating protein conformations and preventing irregular folding interactions following stress.[32] HSP induction has been associated with increased high-energy phosphate content, decreased oxidative stress, and reduced reperfusion damage, usually measured eight to 24 hours following the stress induction.[33] Studies have demonstrated that even a transient ischemic episode may induce the expression of HSP mRNA in the mammalian heart and may play a role in the development of myocardial tolerance to subsequent severe ischemia.[34,35]

Heat-Shock Proteins in Humans.—There have been only a limited number of reports regarding HSPs in humans. Specifically, cardioplegic administration during human open-heart surgery has been shown to induce HSP mRNA induction.[36] And rats transfected with human-inducible HSP were found to be significantly more resistant to ischemic stress.[37] This suggests that HSPs may be protective in humans. It is interesting to note that reduced HSP induction has been reported in aged animal hearts following transient ischemia.[38] This suggests that aged human hearts may have a limited capacity for adaptation to stress, which may contribute to heart failure in the elderly.

The Two-Stage Response to Stress

There are remarkable similarities between the heat-shock and preconditioning phenomena. Both can be induced by a wide spectrum of external stresses and both provide similar protection against the deleterious effects of myocardial ischemia and reperfusion. However the time span for each of these modalities is quite different. The preconditioning response has an onset within minutes but lasts less than 90 minutes at 37°C.[39] On the other hand, the onset of the heat-shock response requires at least two hours for the cell to upregulate the intracellular machinery necessary to translate sufficient quantities of HSP, but its protection appears to last for days.[40]

It may be speculated that the heart possesses a two-stage intracellular response to stress. This proposed mechanism is schematically represented in Fig. 1. The early effect is manifested by the preconditioning phenomenon and is mediated by an unknown endogenous compound. As the preconditioning effects begin to disappear, a number of molecular and cellular events take place. The late effects are likely mediated by transcriptional and/or post-transcriptional alteration of genes and are referred to as myocardial adaptation to stress. This response has been associated with the induction of mRNAs for antioxidant and heat-shock proteins,[41] stimulation of antioxidant enzymes, and a reduction in oxidative stress.[42] Our laboratory has specifically demonstrated that transient ischemia induces the sequential upregulation of mitochondrial genes responsible for ATP synthesis, which may contribute to ultimate myocardial adaptation.[43]

Potential Clinical Applications for Preconditioning and Heat-Shock Proteins

While the ability of preconditioning and the heat-shock response to limit ischemia and reperfusion injury in laboratory animals is widely published, its clinical applicability has been limited. This is due to an understandable reluctance of clinicians to subject their patients (with underlying cardiovascular disorders) to the ischemic, hypoxic, or pharmacologic stress that is necessary to elicit these phenomena. However, there may be a role for these modalities in donor heart preservation prior to transplantation. In this setting, a brief stress in an otherwise normal heart may extend the period of viable cold storage. Under normothermic conditions, the protective effects of ischemic preconditioning may be lost after 60-90 minutes of ischemia.[39] Under moderate hypothermic conditions (20°C), however, ischemic preconditioning has afforded myocardial protection for up to three hours of ischemia.[44] Using hypoxic preconditioning under profound hypothermic conditions (4°C), we have extended the period of protection to six hours in isolated rat hearts,[45] which was associated with the upregulation of HSP mRNA.[41] This is a unique example of a single stress (hypoxia) inducing a combined preconditioning/HSP response with simultaneous myocardial protection.

The heart has a remarkable ability to adapt rapidly to stress and upregulate systems that can defend against ischemic insults. This response is coupled to the early upregulation of primarily mitochondrial genes, which are reminiscent of the organelle's prokaryotic ancestry.[43] Within 24 hours of stress, the heart dramatically increases the synthesis of HSPs. These proteins are remarkably conserved throughout species, both structurally and functionally. This suggests that both the early (preconditioning) and late (adaptation) stress responses play an essential role within the cell. This was realized by the prominent stress researcher Hans Selye, who wrote in 1937, "adaptation to our surroundings is one of the most important physiologic reactions in life; one might even go so far as to say that the capacity of adjustment to external stimuli is the most characteristic feature of live matter."[46]

Researchers will continue to attempt to harness this powerful protective machinery for cellular protection against ischemia and reperfusion injury. However, prior to the clinical application of these phenomena, the specific mechanisms underlying the preconditioning/adaptation responses must first be ascertained. Ideally, the search continues for a direct pharmacologic, immunologic, or molecular manipulation which can lead to enhanced endogenous myocardial protection.

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Use of Neodymium Yttrium Aluminum Garnet Laser in Long-term Palliation of Airway Obstruction

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ABSTRACT—Palliation of acute airway obstruction using the neodymium yttrium aluminum garnet (Nd-YAG) laser was studied in 54 patients who presented over a 42-month period to the Yale cardiothoracic surgery service. Thirty-seven patients had bronchogenic carcinoma; 27 had stage IIIB or IV disease. Nine patients had endobronchial metastases from a primary nonbronchogenic carcinoma. Eight patients had benign disease. A total of 109 Nd-YAG laser tumor ablations were performed. In addition, 32 patients underwent postoperative brachytherapy. Median survival for all patients was 12 months. Patients with bronchogenic carcinoma had a median survival of five months. Fifteen of 20 patients (75%) alive at the time of follow-up reported continued palliation as shown by an improved postoperative Karnofsky score.

There was no survival benefit from Nd-YAG laser ablation of endobronchial bronchogenic carcinoma; however, the Nd-YAG laser provided good to excellent palliation in the majority of patients on long-term follow-up.

Introduction

BRONCHOGENIC carcinoma continues to carry a poor prognosis, primarily because the majority of patients present with advanced, surgically unresectable disease.[1] Although multiple therapies including external beam radiation, chemotherapy, and brachytherapy exist, none are curative.[2] Treatment of patients with airway obstruction secondary to intractable endobronchial lesions is often discouraging; death by asphyxiation may occur before conventional treatment modalities take effect. As such, the development of tumor ablation with lasers is a significant advance in the treatment and palliation of patients with these endobronchial lesions. Relief of endobronchial obstruction with laser therapy is often immediate and dramatic. Although short-term palliation is well documented by multiple studies,[3-7] long-term palliation and survival has been less thoroughly investigated. We retrospectively examined long-term palliation and survival after neodymium yttrium aluminum garnet (Nd-YAG) laser therapy in patients with airway obstruction.

Materials and Methods

Fifty-four patients with symptoms of acute and subacute upper airway obstruction were referred to the Yale-New Haven Hospital cardiothoracic surgery service during a 42-month period for tumor ablation with the Nd-YAG laser. Presenting symptoms included cough, hemoptysis, wheezing, stridor, and dyspnea.

Preoperative airway assessment was performed using bronchoscopy. Additional preoperative studies included posteroanterior and lateral chest roentgenogram, electrocardiogram, and complete blood cell count. Patients with airway obstruction secondary to malignant processes were

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seen in consultation with radiation oncology to assess the potential benefit of postoperative brachytherapy.

All treatments were performed under general anesthesia with endotracheal intubation. Patients were intraoperatively monitored for adequate oxygen saturation, end-tidal carbon dioxide production, and by electrocardiogram. The Olympus BF-1T2Od flexible bronchoscope was used. Tumor ablation was performed using the Nd-YAG CL60 SLT Contact laser. Power settings from 25-45 watts with 0.5-1.0 second pulse were used until adequate airway patency was reestablished. Repeat ablation as a second operative procedure was performed for patients with large, bulky tumors.

When indicated, afterloading brachytherapy catheters were placed immediately after completion of laser therapy. Catheters were introduced through the cricothyroid membrane using the Seldinger technique. The bronchoscope was then used to guide the catheter to the appropriate location. Patients underwent either immediate postoperative brachytherapy or during the first postoperative day. The catheter was removed immediately after treatment.

Postoperative follow-up was obtained through office visits, by chart review, or by telephone contact with the patient, patient's family, or referring primary-care physician. Survival was measured in months from the time of first presentation and Nd-YAG laser treatment until time of follow-up contact or death. Survival was measured using the Kaplan-Meier method. Patients who were alive at the time of follow-up were questioned with regard to their preoperative and postoperative activity levels; they were assigned activity classifications based on a modified Karnofsky Performance Index. Patients who functioned independently in their activities of daily living with little or no obstructive symptoms were given class "A" status. Patients who required some assistance, or were moderately symptomatic were given class "B" status. Patients who were severely symptomatic or required institutionalized care as a result of their pulmonary status were classified as "C" patients. Palliation was considered a long-term success in patients who maintained an upgraded activity classification at the time of follow-up.

Results

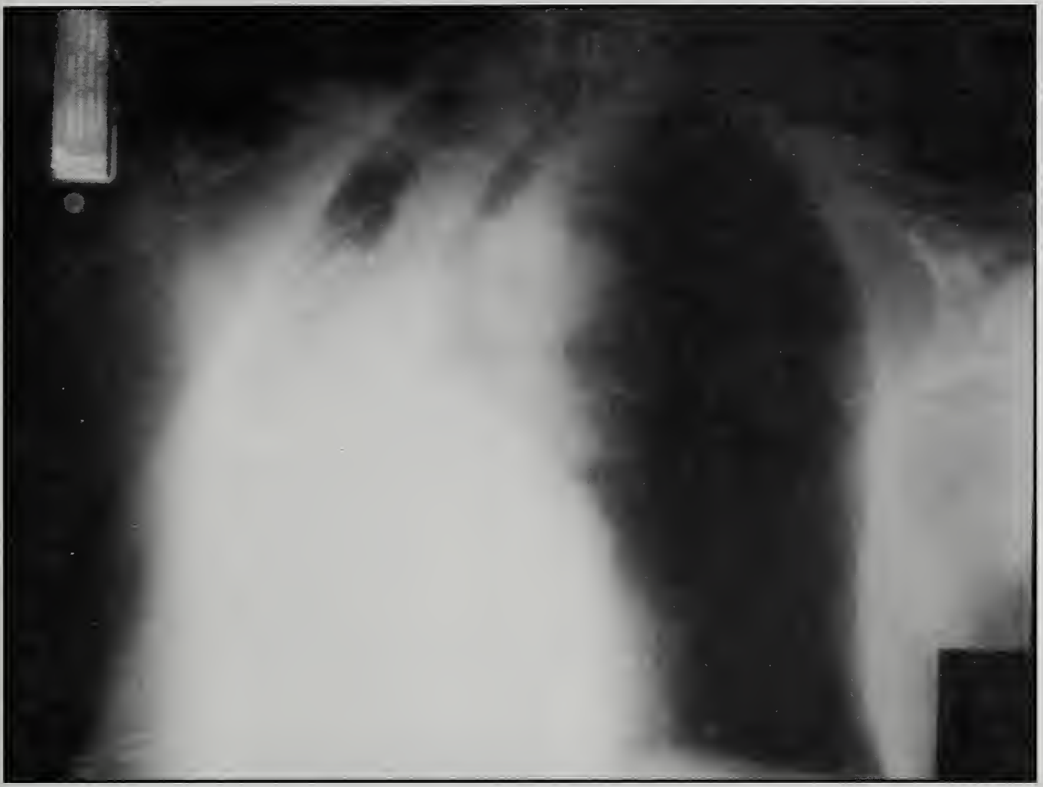
All 54 patients underwent Nd-YAG laser endobronchial tumor ablation. Thirty-three of the patients were men, 21 were women. The median age was 66 years (age range: less than one year to 86 years). Thirty-seven patients (69%) had bronchogenic carcinoma (Table 1). Twenty-seven of these patients had stage IIIB or IV disease. Most patients had undergone external beam radiation and/or chemotherapy prior to referral for upper airway obstruction. The prevalent histologic diagnosis, seen in 20 patients, was squamous cell carcinoma. Airway obstruction secondary to other causes was seen in 17 patients (Table 2). Nine patients developed lung metastases from a nonbronchogenic primary. In two patients the tumor originated in adjacent organs and involved the airway by direct extension. Eight patients presented with airways compromised by benign disease processes; six patients developed tracheal stricture from granulation tissue after prolonged endotracheal intubation. One patient presented with a papilloma and the other, a hamartoma.

There was no predominant site of obstruction (Tables 1 and 2). Five of these patients underwent Nd-YAG laser therapy for upper lobe lesions. Three of these patients had symptoms of cough and hemoptysis. Two patients presented with postobstructive pneumonia. Three patients had multiple obstructed sites, and one presented with metastatic breast carcinoma in both mainstem bronchi as well as in the trachea.

A total of 109 procedures were performed. Twenty-five patients underwent multiple ablation procedures. One patient underwent 16 ablations over a 21-month period for a poorly differentiated bronchogenic carcinoma. Similarly, one patient with lung metastases from colon adenocarcinoma underwent 17 ablations over a 24-month period. In nine patients, rigid bronchoscopy was performed in addition to flexible bronchoscopy for removal of tumor fragments. In two patients an endobronchial stent was required: a left mainstem bronchus stent was placed intraoperatively in one patient for continued luminal obstruction despite extensive tumor ablation with the Nd-YAG laser; another patient with tracheomalacia underwent left mainstem stent placement one day postoperatively. Thirty-two patients had afterloading brachytherapy catheters placed for postoperative brachytherapy.

Three patients underwent Nd-YAG laser therapy prior to pulmonary resection. Of the two patients who underwent pneumonectomy subsequent to laser therapy, one presented acutely with hemoptysis. The other patient presented with a postobstructive pneumonia. One patient presented with pneumonia secondary to obstruction from a metastaic melanoma. Subsequent to laser therapy, he underwent a left lower lobe resection.

There was no morbidity or mortality associated with use of the Nd-YAG laser. In eight patients, tumor ablation was carried out in two or more sessions during a single hospitalization to avoid the risk of tracheal edema and possible hypoxia from an extensive procedure and the accumulation of charred tissue. The majority of procedures lasted less than one hour. The majority of patients had an excellent result as documented by chest roentgenogram (Figures 1A and 1B). Patients were extubated in the postanesthesia care unit and discharged from the hospital the following day. Hospitalization was prolonged in several patients who underwent additional procedures unre-



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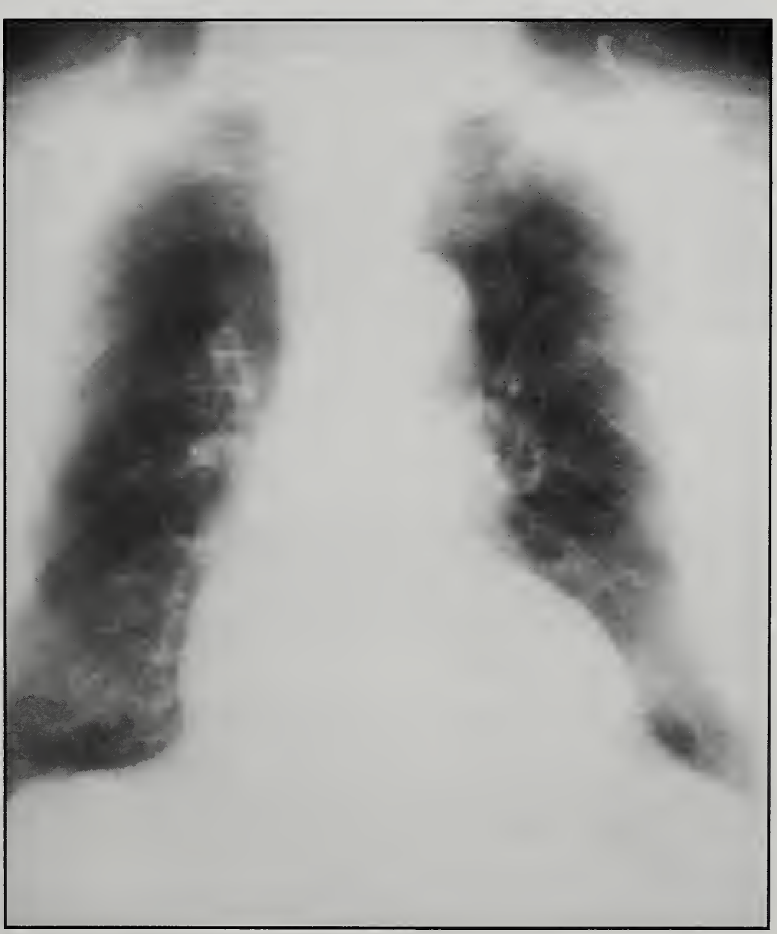

1B

Figure 1A/1B.—Preoperative (1A) and postoperative (1B) chest roentgenograms of a patient who presented with acute airway obstruction secondary to metastatic colon adenocarcinoma of the right mainstem bronchus.

Table 1.—Histologic types, obstructed sites, and stages of patients presenting with airway obstruction from bronchogenic carcinoma (n=37)

Obstructed sites:	trachea (1) right mainstem (10) left mainstem (11) lobar bronchi: RUL (3), RML (3), RLL (8), LUL (2), LLL (1)
Histologic types:	squamous cell (20) adenocarcinoma (4) small cell (3) large cell (2) undifferentiated (8)
Stage:	I (1) II (0) IIIA (9) IIIB (9) IV (18)

Abbreviations: RUL - right upper lobe; RLL - right lower lobe; RML - right middle lobe; LUL - left upper lobe; LLL - left lower lobe

Table 2.—Diagnoses, obstructed sites, and outcome after Nd-YAG laser therapy for patients with nonbronchogenic carcinoma and benign disease (n=17)

Diagnoses:	breast carcinoma metastatic melanoma colon adenocarcinoma (2 patients) Hürthle cell carcinoma esophageal squamous cell renal cell carcinoma (2 patients) nasopharyngeal carcinoma tracheal stenosis (6 patients) hamartoma papilloma
Obstructed sites:	trachea (11) right mainstem (1) left mainstem (1) lobar bronchi: RUL (1), RLL (2), LUL (1), LLL (2)
Status at time of follow-up:	
alive:	11 patients (follow-up time: 2-41 months)
dead:	6 patients (follow-up time: 12-36 months)

Abbreviations: RUL - right upper lobe; RLL - right lower lobe; RML - right middle lobe; LUL - left upper lobe; LLL - left lower lobe

lated to tumor ablation including thoracostomy tube placement for malignant effusion, continued ventilator support for preoperative pneumonia, radiation therapy for metastatic disease, or brachytherapy. The overall median hospital stay was six days.

Complete follow-up was obtained in all 54 patients. Twenty patients were alive at the time of patient contact. Survival was estimated using the Kaplan-Meier method (Figure 2). The overall median survival was 12 months with a two-year survival of 26%. All patients who survived beyond 26 months had benign disease. Survival was calculated separately for those patients with bronchogenic carcinoma. Median survival for these patients was five months; the one-year survival was 30%. Patients with bronchogenic carcinoma who underwent additional postoperative brachytherapy had a median survival of six-months and a one-year survival of 28%. Of patients with other malignancies or with benign disease, 11 were alive at the time of follow-up (Table 2). The longest surviving patient with malignant disease lived for two years after initiation of laser treatments.

Median time to follow-up for surviving patients was eight months. The majority of the 20 patients who were alive at the time of follow-up reported mild symptoms, but were functioning independently as class A patients (Table 3). Fifteen patients (75%) maintained a postoperative classification that was improved compared to that perceived preoperatively. Five patients (25%), reported an activity level and symptoms comparable to those perceived preoperatively, or a level that was worse. In most cases, worsening of symptoms resulted from progression of disease.

Discussion

The development of tumor ablation with the Nd-YAG laser over the last decade is a significant advance in the treatment of patients with airway obstruction secondary to endobronchial lesions. Many of these patients have otherwise intractable airway obstruction caused by end-stage bronchogenic or metastatic carcinoma. Although external beam radiation and chemotherapy are available treatments, their palliative role for patients who present with acute airway compromise is limited by the length of time needed for therapy to be effective. Relief of obstruction with the Nd-YAG laser is immediate and potentially life saving in patients in acute respiratory distress.

The Nd-YAG laser has superseded the previously used carbon dioxide laser. Advantages of the Nd-YAG over the CO_2 laser include greater power (up to 100 watts), deeper tissue penetration, and improved coagulation of bleeding vessels. The Nd-YAG laser can be used through the fiberoptic bronchoscope which allows greater flexibility and access to tumors in upper lobar bronchi that previously could not be approached with the CO_2 laser and rigid bronchoscope.[8]

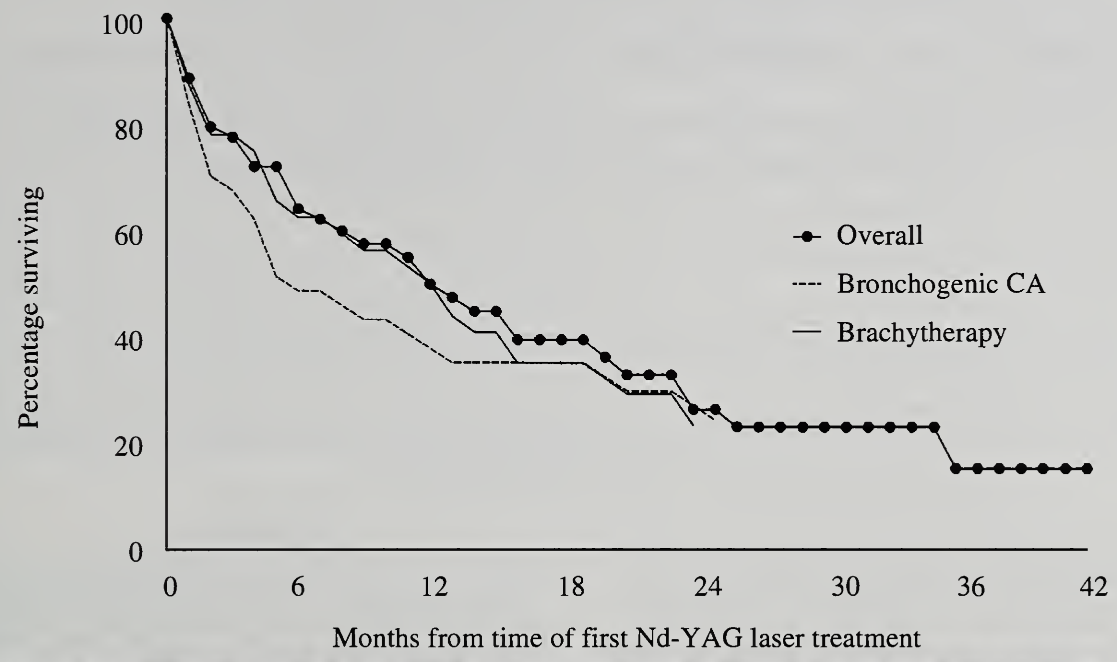

Figure 2.—Kaplan-Meier survival after Nd-YAG laser treatment. Shown are: overall survival (n=54), survival of patients with bronchogenic carcinoma (n=37), survival of patients undergoing postoperative brachytherapy (n=32).

Dumon[3] and Toty[4] in France pioneered the development of the Nd-YAG laser for use in endobronchial tumor ablation. They and several investigators in the United States found that palliation was achieved in a high percentage of patients who presented with acute, intractable upper airway obstruction.[5-7,9,10] Although the majority of series have reported only short-term palliation, some limited long-term follow-up has been reported: in Toty's series, 17 of 48 patients who presented with acute distress from bronchial obstruction secondary to carcinoma were alive six months postoperatively.[4] Nine of these patients survived more than a year after their initial procedure. Brutinel reported a one-year survival of 36% in his series of 116 patients, with a median time to retreatment or death of five months.[7] Desai's series of 47 patients showed a one-year survival of 21% with a median survival of five months.[9] Survival in our series of 37 patients with unresectable bronchogenic carcinoma is similar: 30%, with median survival of five months. This technique does not result in improved survival for patients with advanced disease; the median survival of five months in patients with stage IIIb and stage IV disease in this series is comparable to the four-month survival expected in stage IV patients treated appropriately with other available therapies.[2] However, when applied specifically to the select population of patients with potentially life-threatening airway obstruction, survival may be prolonged. Desai found a significant increase in survival for patients treated with emergency Nd-YAG laser when compared to that of controls who had presented with the same degree of distress before the availability of treatment.[9]

In addition, of the 20 patients alive at a median follow-up of eight months, palliation and airway patency were maintained in 15 patients. In two patients with malignant processes, repeated use of the Nd-YAG laser, over a 21-month and 24-month period, maintained palliation and airway patency such that they were able to engage in a moderate level of independent activity with brief periods of hospitalization before their demise.

In our series, there was no significant mortality or morbidity associated with use of the Nd-YAG laser. Complications in other series have varied. One of the potentially fatal complications is massive intraoperative hemorrhage.[5,7,10] This complication may be minimized by keeping the Nd-YAG laser power setting as low as possible. After three deaths in Brutinel's series, the power was decreased from 90 to 40 watts with resolution of the problem.[7] We experienced no complications with a power setting between 25-45 watts. Other possible complications include hypoxia, pneumothorax, ignition of charred tissue at the ablation tip of the laser, and postoperative pneumonia from endobronchial spillage of postobstructive debris.[8] We did not have these difficulties. In our treatment of patients, hypoxia and tracheal edema were avoided by staging repeat procedures for patients with large bulky tumors.

Table 3.—Postoperative activity level of patients alive at time of follow-up (n=20)

Diagnosis (n=number patients)		***Improved from preoperative status***
Bronchogenic carcinoma:	IIIA (3)	3
	IIIB(3)	2
	IV (3)	3
Metastatic carcinoma (5)		3
Tracheal stricture (5)		3
Hamartoma (1)*		—

*Asymptomatic lesion detected on preoperative chest roentgenogram for unrelated procedure

Rigid bronchoscopy for tumor ablation was performed as an adjunctive procedure in nine patients in whom a large tumor burden was present. The rigid bronchoscope allowed for the passage of forceps that were used to remove tumor bulk and debris. The rigid bronchoscope may also be used to tamponade bleeding lesions by direct compression; as such, use of the rigid bronchoscope with the Nd-YAG laser is especially advocated for proximal lesions.[11] Reported complications of rigid bronchoscopy include laryngospasm and cardiac arrhythmia.[6]

Combined use of brachytherapy with the Nd-YAG laser may prolong palliation. In Allen's series of patients who underwent Nd-YAG tumor ablation combined with brachytherapy, patients with recurrent airway obstruction who underwent combined treatment had a longer period of airway patency compared with that after their initial treatment with the Nd-YAG laser alone.[12] Postoperative brachytherapy may decrease the need for repeated tumor ablations with the Nd-YAG laser by slowing the rate of tumor regrowth thus avoiding the potential mortality and morbidity of repeated precedures. However, the median survival of six months in patients with bronchogenic carcinoma who underwent postoperative brachytherapy is no longer than those patients who did not. Of the 32 patients who underwent combined treatment, nine required repeated ablation after brachytherapy. In two patients, repeat Nd-YAG laser ablation was performed during the same hospitalization as a second operative procedure. The interval time to retreatment in the other seven patients ranged from two weeks to one year.

In summary, the Nd-YAG laser was used to treat acute or subacute airway obstruction in 54 patients without significant morbidity or mortality. In the majority of patients, hospitalization was brief with a median stay of six days. Use of the Nd-YAG laser was not associated with improved survival in our series; however, the majority of the patients alive at follow-up continued to have effective palliation from obstructive symptoms and were able to maintain an independent level of activity. As such, the ultimate advantage of the Nd-YAG laser therapy may be the ease with which repeated applications can optimize airway patency and independent patient function over a long-term period.

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Abstract of Papers: 1995 American College of Physicians, Connecticut Chapter Scientific Session Award Winners

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Trimethoprim/Sulfamethoxazole in Standard Dose Causes Hyperkalemia

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Trimethoprim (TMP), when used in high dose (20 mgs/kg/day), has been shown to induce hyperkalemia in a significant percentage of patients with AIDS. Hyperkalemia resulted from the ability of TMP to block Na^+ channels in the distal nephron (amiloride-like) and inhibit renal (K^+) excretion. However, standard dose TMP ($<=360$ mgs/day) has not been noted to cause hyperkalemia. We undertook a study to evaluate the effect of standard dose TMP on the development of hyperkalemia.

Seventy-two patients treated with TMP and sulfamethoxazole (SMX) in standard dose for a variety of infections were compared with 13 non-TMP/SMX-treated controls. All but one TMP/SMX-treated patients experienced a rise in K^+, with a mean of 1.12 mmol/L. In the controls, serum K^+ fell by a mean of 0.14 mmol/L. Forty-five of 72 (63.4%) had a peak serum $K^+ >5.0$ mmol/L and 17 (24%) had a peak $K^+ >5.5$ mmol/L. Patients with initial serum creatinine (Cr) >1.2 mg/dL experienced a significantly greater rise in K^+ than did those with a Cr <1.2 mg/dL. There were two deaths in which hyperkalemia likely played a role. TMP/SMX resulted in a significant rise in serum Cr; however there was no direct relationship between the level of rise in Cr and the level of rise in K^+.

Standard dose TMP/SMX resulted in a nearly uniform rise in serum K^+, compared with matched controls. In 24% the hyperkalemia was clinically significant (>5.5 mmol/L). These data suggest that TMP/SMX in standard doses can cause hyperkalemia in non-AIDS patients. Care should be taken in the use of TMP/SMX, especially in those patients with concurrent renal insufficiency.

Implantation Technique Revisited: Reliability of Defibrillation Energy Requirements When Determined During Partial Cardiopulmonary Bypass

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About 10-20% of patients receiving implantable cardioverter-defibrillators (ICD) require concomitant cardiac surgery. Defibrillation threshold (DFT) testing during cardiopulmonary bypass (CPB) has been advocated to reduce the risks associated with repetitive inductions of ventricular tachyarrhythmias. However, there are few data available about this practice. We investigated the reproducibility of DFTs determined during and following cardiopulmonary bypass in 22 patients (18 males, four females, mean age 69±9 years, mean left ventricular ejection fraction [LVEF] 34±18%) who underwent coronary artery bypass grafting and placement of epicardial patches. DFT was assessed during nommothemmic (37.04±0.66°C) partial CPB and repeated immediately after weaning from CPB in 16 patients (group 1) and 8-21 days later in 6 patients (group 2).

Results: The mean DFTs during and after CPB were 14±4 and 15±7, respectively (P=NS). One patient in group 2 had an unacceptable elevation of DFT determined post-CPB. The mean lead impedances during and after CPB were 31±7 and 27±5, respectively (*P*=0.002). Comparison between groups 1 and 2 are given in the table.

Conclusions: 1. DFTs determined during CPB are reliable. 2. A rise in lead impedance after CPB may affect performance of some ICDs. 3. Patients who were unstable post-CPB had a lower LVEF and requited longer time on CPB, although DFT time was similar in both groups. DFT testing during CPB is a reliable alternative in patients likely to be unstable post-CPB.

Group	*n*	*Age*	*LVEF*	*# Grafts*	*CPB time*	*DFT time*
1	16	67±9	39±18%	2.6±1	112±63	10±7
2	6	72±8	20±8%	3.0±2	222±94	13±3
P		NS	.001	NS	.001	NS

Lung Cancer Presenting as an Isolated Abducens Nerve Palsy

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Paralysis of the sixth cranial nerve is the most commonly acquired extraocular nerve palsy. Fifty percent of cases are attributed to vascular disease (hypertension, diabetes mellitus), head trauma, and aneurysm. Between 14% and 26% are associated with malignancy, but these are generally intracranial primary tumors or local metastases. We report a case of isolated abducens nerve palsy as the presenting feature of lung cancer.

A 63-year-old white male with a history of aortic valve replacement in 1983 was seen following one week of diplopia. He had no headache, facial pain, fever, loss of visual acuity, dizziness, vertigo, other neurologic, or systemic symptoms. He denied hypertension, diabetes, or recent head trauma. Routine examination one month earlier had revealed no physical or laboratory abnormalities. On examination he was afebrile and normotensive, with a complete left lateral rectus palsy. Other extraocular movements were intact. Pupils were equal and reactive to light and accommodation .There was no proptosis, ptosis, or abnormal facial sensation. Funduscopic examination was normal. Other neurologic and general examination was unremarkable. Laboratory data revealed a white blood cell count of 10,400/mm^3, hematocrit 36.2%, platelets 248,000/mL^3, creatinine 1.9 mg/dL, and normal glucose. Magnetic resonance imaging of the brain revealed multiple ring enhancing lesions in the subcortical white matter with surrounding edema. The posterior fossa had no lesions near the abducens nucleus, but an abnormal area in the left cavernous sinus located behind the cavernous portion of the internal carotid artery was abnormal, and interpreted as a metastatic lesion. A computed tomographic scan (CT) of the chest revealed a spiculated mass in the apex of the right lung with mediastinal adenopathy, multiple smaller nodules in both lungs, and a right pleural effusion. Abdominal CT scan showed metastases in the spleen and liver. Cells obtained by bronchial brushing revealed poorly differentiated adenocarcinoma of the lung. Radiation therapy and chemotherapy (taxol) was instituted without change in his cranial nerve palsy.

Conclusion: Lung cancer metastasizes to the central nervous system in approximately one-third of cases, usually to the cerebral hemispheres, dura mater, hypophysis, and cerebellum. Rare metastases have been documented in the cavernous sinus, but previously reported cases have manifested as parasellar syndromes in conjunction with multiple cranial nerve defects. A thorough literature search did not reveal a case in which an isolated abducens nerve palsy was the presenting sign of lung cancer. Our case report documents one such rare event.

Coronary Artery Disease in Systemic Lupus Erythematosus: A Clinicopathological Study

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Recent evidence suggests that coronary artery disease (CAD) is a significant cause of morbidity and mortality in patients with systemic lupus erythematosus (SLE). To confirm this impression, we carried out a retrospective autopsy study. Of 800 patients meeting the ARA criteria for SLE followed at our center over the last 25 years, 79 deaths were recorded (10%) out of which 25 (32%) complete autopsies were obtained and reviewed (four males, 20 females).

Findings: Sixteen (14 females, two males) out of 25 patients had CAD at autopsy. Only eight patients were correctly diagnosed as having CAD antemortem and none had had CAD risk factors identified. Of these, nine (38%) had severe CAD (>70% stenosis of one or more epicardial vessels), two (8%) had moderate (40-70% stenosis of one or more vessels), and five (21%) had mild CAD. All 16 had a diffuse pattern of CAD (two or more vessels involved). Acute myocardial infarction (Ml) was found in seven patients (29%) and six patients (25%) had evidence of an old MI. Other findings included endocarditis (25%), left ventricular hypertrophy (46%), myocarditis (4%), coronary vasculitis (8%), coronary artery thrombosis (17%), and pericarditis (21%).

Conclusions: CAD is a major cause of morbidity and mortality in patients with SLE and suggests that severe, diffuse CAD is being underdiagnosed in SLE patients, as young females are conventionally a low-risk group for CAD.

The Triple Stain, Rapid Urease Test, and Histopathology in the Detection of *Helicobacter Pylori*

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To date, a rapid, accurate, easy-to-perform, and reproducible test to detect *Helicobacter pylori* has yet to be delineated. Rapid urease tests (RUT) are easy and rapid to perform, have high sensitivity and specificity, but do not allow for histopathologic correlation. A recent report described a triple staining technique (TS) that combines the Steiner (silver), hematoxylin and eosin (H&E), and alcian blue stains at pH 2.5 into a single procedure. Although TS takes a little extra time to prepare, it is simple and permits the pathologist to examine the same slide simultaneously for *H. pylori* as well as inflammation and intestinal metaplasia.

The present study was initiated in order to integrate RUT into our regimen of tests for *H. pylori* (H&E stained antral biopsies and Papanicolaou stained gastric touch preps, [GTP]). One hundred consecutive patients were entered into the study whenever *H. pylori* was suspected. The presence of these organisms was determined based on positive RUT, H&E, and GTP. Thirty cases had inconsistent results and were independently and blindly reviewed by an experienced pathologist, which easily resolved 17 discrepancies. Thirteen cases needed more intensive review, which was greatly facilitated by TS.

Seventy-three percent of positive RUTs turned positive within three hours (43% within 20 minutes) and correlated 100% with the presence of chronic active gastritis. TS was easily adapted to our laboratory and was useful in resolving discrepancies between other tests, especially when debris or contaminating bacteria caused false positive GTP or H&E results.

In conclusion, we found RUT highly sensitive and specific, which can be used in lieu of histopathologic examination for *H. pylori* detection. TS combines the best features of silver staining for *H. pylori* as well as H&E and alcian blue stains for histologic evidence of inflammation and intestinal metaplasia, and was helpful in resolving discrepancies between other tests. Given the relatively low sensitivity and specificity of H&E and GTP, TS may be used to evaluate specimens that are equivocal by other methods.

	SENS	*SPEC*	*PPV*	*NPV*
RUT	97%	100%	100%	98%
H&E	68%	92%	84%	83%
GTP	63%	87%	75%	79%

Hepatitis C Virus (HCV) Seroprevalence in Women Attending a Prenatal Clinic Followed by a Case-Control Study to Determine Possible Risk Factors

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The epidemiology and transmission of HCV infection is currently under intense scrutiny. Although parenteral transmission of HCV has been established, the horizontal and venereal spread of HCV remains undefined.

Objective: To determine the seroprevalence of and risk factors associated with HCV infection in pregnant women at the University of Illinois at Chicago Hospital which serves an ethnically diverse, indigent population.

Methods: We obtained blood from 4,500 women consecutively who presented at the obstetric clinic from May 1990 through January 1992, and tested for HCV-antibody using a second generation EIA assay. We performed a case-control analysis comparing each HCV-seropositive woman with four randomly selected HCV-seronegative controls matched only in that their serology was obtained within the same week. Data were gathered through retrospective chart review.

Results: Of 4,500 patients, 26(0.6%) tested positive for HCV antibodies. Risk factors for HCV infection are depicted in the table below.

Conclusions: The seroprevalence of HCV among gravid women attending our clinic is low. Risk factors associated with HCV seropositivity include intravenous abuse, HIV infection, alcohol or tobacco abuse, and history of hepatitis. A marginal association with prior sexually transmitted diseases suggest that HCV may be sexually transmitted.

Risk Factors	*HCV+ n=24 **	*HCV– n=101**	*Odds ratio*	*P value*
Sexually transmitted diseases	9/21	21/95	2.643	.0586
Hepatitis	6/22	1/93	34.5	.00016
Rapid plasma reagent test+	1/21	2/90	2.2	ns
HIV	5/16	0/48	nd	.00057
Intravenous drug abuse	13/24	4/96	27.12	<.0001
Alcohol	6/23	3/97	11.059	.0015
Tobacco	11/23	23/98	2.989	.00366
Contraception	5/21	40/94	.4219	.1409
Glucose intolerance	3/15	17/75	1.17	ns
Blood transfusions	3/23	5/93	2.64	ns
Abortion	9/21	39/98	1.14	ns

*Denominators do not reflect the total number since data for each variable were not always available in charts.

Bronchiectasis and Human Immunodeficiency Virus (HIV) Infection

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The incidence of bronchiectasis in the general population has decreased in recent decades following the development of antimicrobial therapy and vaccines, but it is a newly emerging complication in the HIV-infected (HIV+) population. Little is known about incidence, pathogenesis, and natural history in the HIV+ population. We examined the prevalence of this complication in our HIV+ patients and characteristics of patients with documented bronchiectasis.

We reviewed the chest radiographs (CXR) and computed tomographic scans (CT) of 50 HIV+ patients. These 50 patients had either the clinical spectrum of bronchiectasis or had had two or more admissions for bacterial pneumonia from October 1990 to September 1994. We then reviewed the inpatient medical records of patients with radiographic evidence of branchiectasis. Bronchiectasis was evident on CXR and/or CT in 10 of the 50 patients. Five patients had CT scans performed. The patients ages were 26 to 45 years. All but one patient (CD_4 440) had AIDS at time of diagnosis of bronchiectasis and a CD_4 below 100 cells/mm^3. Intravenous drug use (IVDU) was the predominant risk factor for acquiring HIV (60%) and 70% were smokers. Duration of known HIV+ before diagnosis of bronchiectasis ranged from six months to seven years, three patients two or more years. Chronic sinusitis was present in 40%. Opportunistic lung infections occurred in three patients, with *Pneumocystis carinii* pneumonia in two and cytomegalovirus bronchitis in one. Bacterial pneumonias occurred in 9/10 patients, with no preceding opportunistic lung infections in seven. Of these seven, the number of episodes of bacterial pneumonias before diagnosis of bronchiectasis was three or more in four, two in two, and one in one patient. The time interval between the first pneumonia and diagnosis of bronchiectasis was one month to six years, and two or less years in three patients.

In conclusion, bronchiectasis is another pulmonary complication in HIV+ patients. Our study suggests it is more common than previously realized, with bronchiectasis radiographically evident in 20% of our HIV+ patients with clinical bronchiectasis or recurrent bacterial pneumonias. Contrary to previous studies in which all CD_4 counts were <200, our study suggests that bronchiectasis can occur in patients with higher CD_4 counts. Our study also suggests an association of bronchiectasis with IVDU and smoking. The predominant preceding pulmonary infection was bacterial pneumonia but the occurence of other pulmonary infections, the short-time interval from initial infection to documented bronchiectasis, and the small number of episodes of pneumonias in some patients suggest that bronchiectasis in HIV+ patients may be accelerated and its etiology multifactorial.

Clinical Use of IGF-I as a Novel Therapy in the Treatment of Diabetic Ketoacidosis and Insulin Resistance

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Insulin-like growth factor-I (IGF-I) is a homolog of proinsulin and has a range of actions similar to that of insulin. Previous studies in animal models and *in vitro,* have suggested that IGF-I could be useful in the treatment of disorders of altered carbohydrate metabolism because it binds to, and activates both the insulin and IGF-I receptors and stimulates glucose transport. In this study we have shown that IGF-I might be useful in the treatment of patients with severe insulin resistance.

We described the use of IGF-I in the treatment of two patients, one with insulin dependent diabetes mellitus and the other with noninsulin dependent diabetes mellitus complicated by episodes of severe insulin resistance. Administration of massive doses of insulin (more than 1,000 units per hour) during these episodes failed to reverse ketoacidosis or to achieve glycemic control. Treatment with IGF-I (500 μg/Kg IV) had a dramatic effect reversing the hyperglycemia and ketoacidosis. We further investigated the efficacy of daily subcutaneous IGF-I in the treatment of these two patients compared to weekly intravenous IGF-I therapy. Prolonged insulin sensitivity was achieved in both patients after weekly 500 μg/kg IV bolus infusions of IGF-I. Intravenous IGF-I was more effective than subcutaneous IGF-I in inducing this effect. However both intravenous and subcutaneous IGF-I administration resulted in acute symptomatic hypophosphatemia, which could be prevented by coadministaration of potassium phosphate.

In summary, we reported the successful use of IGF-I in the treatment of two diabetic patients with severe hyperglycemia and diabetic ketoacidosis, resistant to massive doses of insulin. IGF-I may prove beneficial in the treatment of more common forms of diabetes mellitus.

Usefulness of Initial Lactic Acid Dehydrogenase (LDH) Levels and Alveolar-Arterial (A-a) Gradient as Predictors of Survival in Pneumocystis Pneumonia (PCP)

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Objective: Pneumocystis pneumonia (PCP) is the leading cause of mortality in AIDS. There is no universal agreement on predictors of mortality in PCP; however, both alveolar-arterial (A-a) gradient and serum lactic acid dehydrogenase (LDH) levels have been studied. Our objective was to study A-a gradient and LDH as prognostic factors in predicting mortality in PCP cases.

Method: Ours is a retrospective study of bronchoalveolar lavage (BAL) confirmed cases of PCP in AIDS patients, in a community hospital from 1989 to 1993. Only 17 cases met the inclusion criteria. Their initial A-a gradient, LDH levels, and liver function tests were recorded. The end point of the study was death in the hospital or discharge from the hospital. These parameters were compared between survivors and those who died. Statistical analysis was performed using Student's t test, linear and logistic regression analysis, and Fisher's exact test.

Results: A total of 17 cases of PCP confirmed by BAL were identified. Four of the 17 died. A-a gradient was available for 15 cases, of whom 12 lived. The mean A-a gradient in the 12 survivors was 39 7±21.0 (SD), and the mean in the three who died was 60.8±17.5 (P=.13, t test). The A-a gradients of those who died were all above the mean of those who lived (P=.12, Fisher's). An A-a gradient of less than 40 predicted survival. Based on these data and logistic regression model the chances of survival are 90% or more with an A-a gradient less than 36, and the risk of mortality is significant with an A-a gradient above 36, but no A-a gradient predicted death. LDH was available for 16 cases. The mean for survivors was 410±178, and the range for those who died was 243 to 418, with a mean of 345±91. All but one had LDH less than the mean of survivors. The seven cases with the highest values for LDH survived. LDH was not a predictor of death (P=.62), or length of stay (P=.67). A-a gradient was not related to LDH or aspartate amino transferase (AST)(P>.5). LDH and AST were linearly related to each other (r=.55, P<.01) but were unable to predict survival or mortality.

Conclusion: An A-a gradient of greater than 40 (on room air) is associated with a clinically significant risk for mortality from PCP; an A-a gradient of less than 40 is not. Initial LDH level is not useful in the prediction of either survival or death.

Effectiveness of Heparin for Prevention of Coagulation Factor Activation During Radiofrequency Catheter Ablation

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Radiofrequency ablation (RFA) is a first-line mode of nonpharmacological therapy for the interruption of the atrioventricular conduction system and accessory pathways for arrythmias. A current is used over the ectopic foci in the heart from a radiofrequency device and an electrode catheter. Diagnostic electrophysiologic study (EPS) is an invasive procedure used to identify these ectopic foci and involves placing catheters inside the heart along the conduction system. Different arrythmias are induced at various sites to map a patient's arrthymia.

A major complication of radiofrequency catheter ablation is thromboembolism, although the mechanism underlying this is unknown. We compared coagulation factor activation during catheter ablation and diagnostic EPS and sought to determine whether IV heparin is effective in preventing it.

Methods: Fifty-five patients were prospectively studied: group I (28 patients) had diagnostic EPS; group II (nine patients) had ablation without heparin; group III (18 patients) had ablation with heparin (8,842±1,842 unit bolus + 1,000 units/h infusion). No differences were found in age, procedure time, or number of radiofrequency applications in group II *vs* III. Thrombogenesis was measured at the start (T0) and the end of the electrophysiologic study or ablation procedure (T1), and the following morning (T2) using D-dimer (DD; ng/mL) and thrombin-antithrombin complex (TAT; ng/mL) assays. In the coagulation cascade, fibrinolysis results from the orderly degredation of cross-linked fibrin by plasmin. The D-dimer fragment is produced from the cleavage and is measured in the plasma of patients with thrombotic disorders.

*Results:**	*Group I*		*Group II*		*Group III*	
	TAT	*DD*	*TAT*	*DD*	*TAT*	*DD*
T0	9.1	915	5.1	464	5.3	206
T1	20.0	1,102	23.2	2,107	8.6	627
T2	4.5	1,016	10.6	627	7.6	720

*Median values

DD increased in all groups at T1 and T2 ($P<0.05$) with the largest increase in the ablation groups (II and III). Compared to baseline, TAT was increased only in groups II and III at T1 ($P<.05$; Wilcoxon matched pairs signed rank test); however, heparinized patients showed a smaller rise in TAT ($P=.004$). TAT returned to baseline by T2 in all groups.

Conclusions: 1) The magnitude of coagulation factor activation appears to be greater in the catheter ablation group compared to the EPS group. 2) Coagulation factor activation may be reduced, but not eliminated, by conventional doses of IV heparin. 3) Higher doses of heparin may be needed during catheter ablation to prevent thrombogenesis.

Neurological Complications in Primary Antiphospholipid Antibody Syndrome

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The antiphospholipid antibody syndrome (APLS) is a clinical syndrome that classically is defined as venous and arterial thrombotic events, recurrent pregnancy loss, and thrombocytopenia. Since thrombosis and ischemia can affect vessels of any size, virtually any number of organs can be involved including muscle, skin, and central nervous system, leading to a wide variety of presenting symptoms. Recent reports suggest an association with stroke, multiple sclerosis, transverse myelytis, and visual loss in these patients.

In this paper we report on the neurologic complications other than stroke, in patients diagnosed with primary antiphospholipid syndrome. In a group of 200 patients with positive anticardiolipin antibody (aCl) that were followed prospectively, 92 qualified as having primary antiphospholipid syndrome and of those, 15 were diagnosed with multiple sclerosis, transverse myelitis, optic neuritis, or a combination of those. We conclude that an important proportion of patients with antiphospholipid antibody syndrome may develop neurologic complications that may be the first presenting symptoms. Especially in patients with unexplained symptoms who are younger than 50 years of age or with a positive family history, workup for APLS is warranted.

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One Immigrant's View: Racism in America

THIRUCHANDURAI V. RAJAN

WHEN I was medical school in India, I was chosen to spend three months as an exchange student in an English medical school. This was in 1967, at the height of racial intolerance in the UK directed against Indians, Pakistanis, and West Indians from Trinidad and Jamaica. The time I spent in England was truly horrendous—there were times when teenagers would yell at me to go back home as I walked from the medical school dorms to the hospital wards; when clerks in stores would ignore me and serve native customers who had come in long after I had; when there were reports every day of marauding bands of skin-heads beating up on "Pakis"—a generic term of endearment for all immigrants from the Indian subcontinent. What made my experience doubly upsetting was that the good people of the Nuffield Foundation and the folks at St. Bart's medical school never accepted that these events were commonplace or that I had reason to be offended. It was altogether very unpleasant and I vowed never to return to England and have not since.

In the 25 years I have lived in this country, I have never once faced overt, blatant prejudice of that kind. I have read that since the passage of proposition 187 in California, Hispanic-looking Americans have been subjected to harassment similar to that I faced in England in 1967; and that in New Jersey towns that fringe New York City, there are gangs of disaffected teenagers who name themselves "dot-buster," after the dots (bindhis) Indian women wear on their foreheads. These gangs are defiantly racist and are sworn to win the streets of Hoboken and Jersey City back from the hated Indian immigrants. Despite these rumblings of racism, as a dark-skinned person, I would rather live in the United States than almost anywhere in the world—even India! Why, asks my wife Sandy in wonder, when the U.S. is so racist?

It is simply because, whether we like it or not, racism seems to be part of human nature. At some primitive biological level, it may even make sense, despite its affront to our esthetic sensibilities. In all of us, there is an inherent urge to classify someone we meet. When I was growing up in the 1960s it became acceptable for young men to cultivate long hair, even in India. On numerous occasions, I would be out with my parents when a young person with long hair would pass by; my parents would ask, "Was that a boy or a girl? It is getting so hard to tell these days they all wear the same clothes and all have long hair...." It was not so much the question I recall with amusement as the tone—a mixture of curiosity, bewilderment, almost anxiety. I would say, what difference does it make? They would accept that it made no difference, but still....

The truth is, of course, that it does matter. To place someone we have just met in the context of our knowledge and experience is critical, both in establishing a pattern of behavior in ourselves and for expectations of behavior from the stranger. This is probably why we try so hard to make connections when we are introduced to someone. "Oh," we say, "Do you know so and who works in the Health Center (or wherever)?" Our survival instincts, honed by millions of years of evolution, alert us to early signs of anomalous or threatening intent in a stranger. Not too long ago, a successful, middle-class black executive wrote in an essay in the *New York Times* magazine section that when he walked alone at night on deserted streets, people would cross over to the other side of the street when they noticed a young black man behind them. I do

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not think that this behavior is reflective of racism as much as it indicates a sensible desire for self-preservation based on probabilistic thinking. When we confront a stranger, we do so instinctively with our guard up, ready for flight or fight if needed. It is for this reason that we need to size up the stranger to prepare our responses. Sex, race, tribe, relatedness—these are important parameters and the earlier we determine these about the stranger, the more prepared we are to protect ourselves. So when we respond to an individual based on our accumulated personal knowledge of the group to which we presume he or she may belong, we do not do so out maliciousness, but from something far more primitive and compelling—the need for self-preservation. To realize that a particular individual may transcend the general requires knowledge of the individual and internal reassurance of that fact. One may argue that this kind of primitive herd behaviour is not becoming of civilized man, but the truth is that in evolutionary terms, we are but a blink away from our ape ancestors. I think that it is for explicable, perhaps less that ideal, reasons that we retain stereotypic responses to people and that these evaluations are based on easily detectable qualities such as sex or color and appearance.

While Sandy and other well meaning liberal white people may despair that the U.S. is unbearably racist, the truth is that it is no more so than most other nations and in many ways, less. My experiences in the U.K. have convinced me that not only are the English racist, they are also unwilling to accept that racism exists in their country. The neo-nazi skinheads in Germany who fire bomb Turkish residents and the Dutch who barely tolerate the teeming Indonesian immigrants are examples of European racism against brown and black skinned peoples. Nor are color prejudices limited to white people. To most Americans, we East Indians are a dark-skinned people. It may come as a surprise that one of the primary qualities that determines the value of a bride in the vicious dowry market in India is the color of her skin. North Indians look down on those of us from South India as dark skinned and inferior. When Cortez and his marauding gang arrived in the New World, the Native Americans welcomed them as gods because of their dazzling white skins. When a past prime minister of Japan made the infamous remarks about black people being the cause of the decline of the U.S,. he was probably articulating a generally held Japanese view. It was the hue and cry from political leaders in this country that made him retract his statements. I am deeply skeptical that his retraction was as heartfelt as his original spontaneous racist utterances.

So why do I, as a dark skinned person, feel more comfortable in this country than in any other? I do not pretend that there is no racism in America; it is quite possible, given the nature of the human psyche, that a society where there is no racist tinge will never exist. But events such as the outcry from political leaders in response to Tanaka's statements; the failure of men like David Duke or Oliver North to win national office; the failure of extreme right-wing fanaticism such as that espoused by the Lyndon LaRouches never to attract more than a fringe following, all make me believe that there is a streak of innate decency in this culture that is taken for granted by most native-born Americans. More than in any country I know, there is a greater awareness of the corrosive repercussions of racism in this culture and more honest attempts at discussion and dialogue. In most other countries, especially Asian countries, the inferiority of some groups of people is regarded as axiomatic. It is truly encouraging that, in this nation, many establishments including much of the press and most branches of the government are committed to the possibility that individuals are not defined entirely by their origins. Racism will not be rooted out in a lifetime. Perhaps, with efforts such as those this culture makes generation after generation, there may really come a time when people are "judged, not by the color of their complexion, but the content of their character." I firmly believe that if it ever occurs in a society of mere mortals, it is more likely to occur here than elsewhere.

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Please send them to: Robert U. Massey, M.D., *Connecticut Medicine,* 160 St. Ronan Street, New Haven, CT 06511

On Sex Education for the Young

ROBERT COLES, M.D.

ABOUT five years ago my wife, Jane, a high school teacher of English, and I were visited by two friends of ours, the parents of a nine-year-old boy and a 14-year-old girl. Both the mother and father were more than a little upset by what was happening in the elementary school their son attended and in the high school in which their daughter had just begun classes. The boy was coming home with vivid accounts of human sexuality, including its variations, if not (as many would have it) peculiarities or aberrations. The teenaged girl was attending classes in which various kinds of contraceptive devices or procedures were being discussed—and along with her classmates, she had learned that condoms were available in a machine located in the school, a so-called "public health initiative." The parents were both upset—and, frankly, a little ashamed to be upset. They were anxious to indicate, right off, that they were not "uptight," were not "prudes," had no claim to being "puritans"—and, of course, we knew them to be thoughtful, sensible people, he a lawyer, she an old friend of my wife's and a one-time teaching colleague of hers.

> *Chastity is the only solution that is 100% effective, costs nothing, has no harmful side effects, and puts you in control of your own life.... Why aren't more people promoting chastity as a solution for teen pregnancy, sexually transmitted diseases, and abortion? [Because] chastity does not make money. No one can sell it, put it in pill form, or make it into a spray repellent to be used before going out on a date.*
>
> *—Molly Kelly*

As we talked, I began to realize that their comments about themselves, so uncharacteristic in the sense that these were not a pair of egoists, were clearly meant to fend off criticism, either already sent their way, or soon to arrive, so they might fear. In that regard, I can still hear both of them telling me what they together had experienced at the hands (the mouth) of someone called the high school psychologist, who in addressing a group of parents with reservations about the "sex education curriculum" had referred to its opponents as somehow "resistant" to what he regarded as (called) "emotional insight"—and by implication, not as "progressive" and "enlightened" as these parents clearly considered themselves to be.

Not that I hadn't experienced before, and firsthand, what they had been going through—Lord, as I sat with them, I was flooded with memories of similar meetings with other parents, and with a few of those so-called "experts" who teach "sex education" courses in our nation's schools. I guess I was somewhat protected by my occupation—a child psychiatrist and a pediatrician. I'm supposed to know some things about children, but, in fact, years ago I kept hearing about AIDS and teenage pregnancy as if my own elementary school children, my teenage children, were in imminent danger of both—unless, of course, they absorbed thoroughly the lessons being offered them, again, in the name of "sex education," in the name, too, of "a progressive, public health-oriented curriculum," another mouthful of words spoken, I noticed, with no felt embarrassment that the limits of modesty were in any danger of being tested.

Today, as I recall that past, I wonder at our willingness to be so willing to let so-called experts working for particular school systems claim and assert such authority over us—tell us that they know best what our children ought to be taught with respect to something called "sex education." Today I also realize that the second time around, so to speak, my wife and I were far more prepared to challenge such "expertise"—did so, actually by sharing

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our experiences with our friends who had come to us for advice. In that regard we were frank to tell of both our bemusement and indignation—sexuality vigorously described, but sexuality also taken for granted as enacted, sexuality (that is) assumed as something high schoolers (even junior high schoolers) simply "do"—hence the constant talk of being "prepared," of learning how to prevent a pregnancy. Yes, "abstinence" was mentioned—but only as a passing nod to a distant, quaint past.

In fact, on several occasions, while serving on medical panels or in the course of speaking before various groups of parents or youths, I have tried to make the case for "abstinence," as indeed it had been made for me by my parents, though without resort to that particular word. So doing, I have summoned not religious precepts, but psychiatric and psychoanalytic experience—what I have learned, actually, from my patients as well as (many years ago) my teachers, or, as they often get called in child psychiatry, my "supervisors," the men and women who try to help along hospital residents so they will gradually feel able to sustain the inevitable frustrations and mysteries (and, yes, provocations) that go with the work they have chosen. Again and again I have shared with those colleagues or parents or youths these words spoken to me by Anna Freud, the founder, it can be said, of child psychoanalysis: "Children and adolescents, both, need to have acquired control—the ability to say no to the instinctual life, which presses upon them (upon all of us), and which can overwhelm anyone who hasn't learned 'the virtue of nay-saying.'" At that point, I interrupted Miss Freud to comment on the phrase she had just used—hardly the usual psychoanalytic language. She immediately sensed the curiosity behind my aesthetic response, "That's a nice way of putting it." She allowed herself a thin smile, and proceeded in this manner (I've edited her remarks): "I heard that ['the virtue of nay-saying'] from an elderly school teacher. We have become friends. She keeps telling me that psychoanalysis has had a bad influence on our 'culture' [in England], even though it may be helpful to our patients. I keep answering her in no uncertain terms; I tell her no, no, no: It is not us [psychoanalysts] —we are not the ones who advocate 'license,' as she puts it. We are on her side: we know—*do we!*—the risks, the great risks that go with a weakened conscience, a weakened capacity to tame the 'drives,' the instincts, a weakened will to do so, whether due to a person's upbringing (no effective lessons at the hands of parents who want that [outcome] to occur, and are ready to work for it) or due to a society, a world that stirs those instincts, encourages their expression, no matter the cost to all of us."

A pause, for some water. I'm thinking that she hasn't given me the context for that school teacher's use of the phrase under discussion—and then she resumes as if she has only stopped to read my mind: "My [teacher] friend talks of 'the virtue of nay-saying,' and I tell her yes, yes, indeed—for children, for adolescents, for all of us. I tell her that young school children have to learn how to obey rules as well as explore the world—I try to explain [to her] that I'm no 'romantic' who thinks children are inherently 'good' or 'creative' if only 'left to be themselves,' as some used to say, when we were starting a nursery in Vienna during the 1920s. And I try to explain that as children get older, they need to gain control over their sexual urges—or they [the urges] will, pretty soon, own them! Of course, there can be the 'craziness' of too much control, and my father's generation saw, experienced that in some people: so much 'repression' that the individual becomes weird, overwhelmed by inhibitions that spread, as we put it, into 'all spheres,' that is, affect the everyday life of the person, apart from the sexual life. But these days, we see the opposite, all too often—young people who haven't been given the encouragement (haven't been taught) to rein in their impulses, to build a 'psychological distance' between what they think (or think they want) and what they (right away) try to find for themselves—and who cares about the consequences! We [in psychoanalysis] have always been on the side of thoughtfulness, you could call it—the gradually developing capacity of young people to sort things out emotionally, figure out how they want to behave, and with whom: All that takes a long time—and is what adolescence, all of it, turns out to be for. So, I'm with the 'nay-sayers,' with the virtue of 'deferred gratification' as some of us in psychoanalysis have called it."

I push a bit; I use the word "abstinence"; I say that some folks in "the States" urge it, especially so in view of a rapidly rising illegitimacy rate (a phrase, even then, in 1970, thoroughly outdated, if not suspect!). Miss Freud nods—says wryly that "abstinence is, of course, a traditional kind of sexuality," and then clarifies tersely: "The capacity for sustained [sexual] abstinence precedes the capacity for a genuine [sexual] choice—otherwise there is what my father called the 'polymorphous perversity' of childhood fantasy life, updated to adolescence and beyond—promiscuity and more promiscuity, impulsivity and all its consequences."

We continued in that vein, and as we did, I was reminded, yet again, how *conservative* Freudian thought really is, in one sense of the word, "conservative"—a realization that anarchy awaits us, if we haven't learned a range of personal constraints, and a realization, too, that the *family* is the most important, the most influential agent for the enunciation and consolidation of those restraints. Indeed, as any teacher knows (the huge significance of those "preschool years"), without the family as such an agent, a child becomes less than human, meaning driven by urges that go uncontrolled, hence expressed to the detriment of anyone and everyone around, including (always) the child himself or herself.

Against such an accumulated background of clinical knowledge and experience, a century's in duration, one wonders why, in the name of contemporary psychiatry or psychoanalysis, "abstinence" would be all that controversial—or, too, an emphasis on the importance of the family as a major and proper educative (moral) influence on young people with respect to their sexuality. There is no question, in that regard, that particular families fail—and the result is all too obvious these days: children who are ruled by impulse, and yes, children who beget children. But by the time such "children" appear on the social scene, as it were, many important years have gone by, and I truly wonder whether "sex education" courses will be the remedy for the years of moral and psychological abdication that have preceded what now gets recognized as troublesome behavior, indeed.

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Robert U. Massey, M.D.
Connecticut Medicine
160 St. Ronan Street
New Haven, CT 06511

CPRO Mammography Outreach Project

Regular screening mammography reduces mortality in older women. Yet, its use in this age group remains low, according to survey data. Connecticut Peer Review Organization (CPRO) examined mammography use rates in elderly women in Connecticut based on Medicare Part B claims data. The state mean use rate was only 32.9% for women aged 65-74 in 1993. In addition, there were three areas with especially low rates identified: Bridgeport, the lower Naugatuck Valley, and Windham.

Based on these findings, CPRO has initiated a pilot Mammography Outreach Project for women Medicare beneficiaries aged 65-74 in those three areas.

Because physician advice has been identified as the single most effective motivating influence for older women to obtain a mammography, an effort to reach physicians and their office staffs is planned. CPRO will be conducting a series of physician and staff conferences in the Naugatuck Valley, Bridgeport, and Windham areas to discuss the mammography claims data and other mammography information for those three areas. Moreover, mutual goals with the Connecticut Chapter of American Cancer Society's Primary Care Prevention Program have been identified. In this program, physician offices will be visited by a physician-nurse team from the ACS, and information about cancer screening for the office staff and patients will be distributed.

A beneficiary outreach effort is also being developed through existing elderly health groups in each community. The beneficiary and physician outreach strategies are scheduled for March 1995 through August 1996. It is hoped that the efforts used in this pilot project will increase awareness that mammography use in older women in Connecticut remains well below national goals set by the National Cancer Institute, and that use can be increased through action at the local level. For further information, call Jeanette Preston, M.D., at 632-6342.

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Medicine's Position Is Both Pivotal and Precarious in Assisted-Suicide Debate

PAUL COTTON

PHYSICIAN-ASSISTED suicide may become as contentious an issue as abortion.

The escalating battle pits those who say they are protecting a right to life against those who are demanding a right to choose. Opposing camps are virtually identical to those that war over abortion with one notable exception: organized medicine.

"They are two different issues," says American Medical Association (AMA) board of trustees secretary Thomas R. Reardon, M.D., an internist in Portland, Ore. "Not even experts agree when life begins," so the AMA maintains that abortion is a medical matter best left between patient and physician. Assisted suicide involves "actively participating in the killing of a living, breathing, functioning, cognitive human being who has a terminal illness," says Reardon.

"For myself and for the AMA this is not a religious issue, it is an ethical issue. Our purpose as physicians is to heal." The option of assisted suicide would tarnish the trust on which the physician-patient relationship is based, he says. Traditionally, most physicians would agree.

Solidarity Is Wavering

However, medicine's solidarity is wavering, and that may tip the balance in debate.

In fact, one thing attorneys for both the National Right to Life Committee and self-styled assisted-suicide crusader Jack Kevorkian, M.D., agree on is that the unusual neutral stance taken by a deeply divided Oregon State Medical Society partly explains why voters there last fall voted for the first time, anywhere in the world, to fully legalize physician-assisted suicide. (The Netherlands has greatly liberalized its assisted-suicide laws, but the practice is still technically illegal there.) The law would allow physicians to prescribe, at the request of patients with a prognosis of six months or less to live, an overdose of pills that can be self-administered.

State medical societies were aggressive in successfully opposing similar referendums in California and Washington that would have allowed physicians to administer lethal injections. But no consensus could be achieved in the Oregon medical society.

Reardon noticed a "schism" by age in that physicians under age 50 were more likely to support passage, reflecting what he calls "a yuppie society coming up that wants instant gratification. They're not used to stress, and do not want to face the difficulties of life. People look for an easy way out."

But some physicians who supported the referendum say they detect the odor of mendacity in medical opposition. They contend that the practice of "sedating to death" terminally ill patients, often without their knowledge or consent, with increasing doses of morphine is already an everyday occurrence that needs to be brought out of the closet.

"What we are talking about happens in this country many times a day," says Peter Goodwin, M.D., associate professor of family medicine at Oregon Health Sciences University School of Medicine, Portland, and a leading supporter of the measure. Goodwin does not want to imply dishonesty on any physician's part. But he allows, as do many, that "Dying patients are given larger and larger doses of morphine. We talk about the 'double effect,' and know jolly well we are sedating them into oblivion, providing pain relief but also providing permanent relief, and we don't tell them."

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Many older physicians do tend to find openness somewhat objectionable, says Susan W. Tolle, M.D., director of the Center for Ethics in Health Care at Oregon Health Sciences University. She notes that in the 1950s physicians rarely told patients about cancer diagnoses. Some still feel as though they should "take the burden onto themselves, and not destroy hope" for the patient. "[Physicians] were using high-dose morphine to end patients' lives 50 years ago, but it was not something you ever talked about openly."

Goodwin says the physician-patient relationship is impaired by the status quo because assisted suicide cannot be discussed legally. "Patients often feel, and the families of dying patients in particular say, that their physicians abandon the dying patient because they are uncomfortable. That happens because the patient does not have a bargaining chip. That chip is saying, 'Doctor, I would like you to help me die.' This provides the patient with the power to initiate a discussion that at present does not occur." Those who do choose to end their lives must do so "without the advice of a physician. Because it is illegal, it inhibits discussion of issues that would most affect a dying person who wants to end life," says Goodwin.

Goodwin says assisted suicide is like the abortion issue with one fundamental difference: there is no argument as to whether there is a third-party interest, like that of the fetus. "It's clear," he says.

Constitutional Challenge

For now, the Oregon law is on hold pending a constitutional challenge by the National Right to Life Committee. It contends that the law violates the constitutional guarantees of equal protection and due process, as well as the Americans With Disabilities Act. And the law has insufficient safeguards to protect those suffering from depression or who are under "undue influence," which may be causing them to consent, says the group's attorney, James Bopp.

Even if safeguards were sufficient, the Oregon law would still be unconstitutional because it discriminates against the terminally ill by exempting them from the protection of laws against manslaughter, says Bopp. "A depressed teenager is protected against [assisted] suicide by general law, but a depressed person with a terminal illness is not," he says. "Very few terminally ill people who are not depressed want to kill themselves.

"The historical reason for laws against assisted suicide has been the recognition that when somebody's seeking suicide, they're responding to a psychiatric illness and not making a rational decision," says Bopp.

The right-to-life movement opposes both abortion and assisted suicide, he says, because both involve "taking innocent human life without sufficient justification. Killing somebody because they are depressed and terminally ill is not sufficient justification."

Those arguments were enough to win a preliminary injunction from Michael R. Hogan, a federal district court judge in Salem, Ore., who wrote in his ruling that "surely, the first assisted suicide law in this country deserves a considered, thoughtful analysis."

Earlier last year, another federal district court judge, in Seattle, Wash., was persuaded by a diametrically different argument to strike down a law against assisted suicide in that state. Judge Barbara Rothstein found that the constitutional guarantee of individual liberty includes the right to seek aid in dying. That ruling is now being challenged before the Ninth Circuit Court of Appeals.

Supreme Court Bound

The inevitable appeals of rulings in those cases may be beaten to the U.S. Supreme Court by a challenge to a recent ruling by the Supreme Court of Michigan. It not only stated that the U.S. Constitution does not prohibit criminal penalties for assisting in suicide, but said that even without a specific statute prohibiting it, suicide assistance "may be prosecuted as a common-law felony."

This case could well be the first to reach the U.S. Supreme Court, according to Geoffrey N. Fieger, attorney for Kevorkian, the former pathologist who has made headlines worldwide by assisting 21 people in ending their lives.

"The fundamental issue is whether the state has the right to intrude in the physician-patient relationship," says Fieger. "This is not about a right to commit suicide, it is about the right not to suffer. At the end of life when the disease process has won, death is certain, and pain cannot be controlled, how the state has an interest in prolonging suffering is beyond me. [Saying that] a law which does not make anybody do anything, that gives people the right to decide, and prevents the state from prosecuting you for exercising your freedom not to suffer, violates somebody else's constitutional rights is insane," he says.

Fieger says assisted suicide is like the abortion issue in that it is opposed by what he calls "radical antiabortionists, very committed religious [zealots] who believe they should control our lives." The issues are different in that "abortion involves a third party, a fetus, they say they are protecting babies. But this is mentally competent adults asking for help in dying. These people are trying to protect us from our own selves."

Whether the courts will ultimately rule that assisted suicide is a privacy matter like abortion remains to be seen. David Orentlicher, M.D., J.D., secretary to the AMA Council on Ethical and Judicial Affairs, notes that there is no traditional right to assisted suicide, and that of late courts are "very reluctant to expand rights to privacy. This

Supreme Court is not likely to be looking to create fundamental rights."

But while prohibitions on assisted suicide are not likely to be found inherently unconstitutional, Orentlicher also suspects that the courts will not recognize the discrimination claims raised by the National Right to Life Committee, because the terminally ill have not been viewed historically as a protected class.

"Most courts would say the Constitution does not require us to prohibit it, but the Constitution does require us to have sufficient safeguards. Courts may set down constitutional boundaries, but they will almost certainly allow states to go either way, so long as, if they do permit it, they have appropriate safeguards," says Orentlicher. States also may have trouble if they "try to have open season," with overly strict enforcement of an assisted suicide ban, he says.

"States are going to be given leeway. The Constitution will allow Washington [State] to prohibit and Oregon to permit as long as it is a reasonably drawn statute," concludes Orentlicher. The issue is "going to be settled much more by legislatures than courts, or by public referendum as in Oregon," he says, adding that just because laws allowing assisted suicide "may be permitted to pass does not mean they are a good idea."

The public referendum route may be particularly troubling for opponents of assisted suicide, since public opinion polls are suggesting wide support for legalization. Fully 72% of 1,796 members of the general public interviewed in a random survey in Michigan by the University of Michigan Institute for Social Research say they support legalization. Of 726 physicians queried, only 17% supported an outright ban; 39% favored legalization with strict safeguards and 39% preferred no law, leaving the matter between patient and physician.

Wake-up Call?

Reardon says that the Oregon referendum was sold to voters as a matter of "patient control, empowering patients to have control over their own lives and any terminal illness. It is a wake-up call, a message to our profession that we are not meeting our patients' needs, a message from the public that we need to be more aggressive. We need to reassure society that we can control most, if not all, [of dying patients'] pain," he says.

Oregon Health Sciences University is taking that message to heart, "no matter what happens in court" with the new law, by creating a multidisciplinary "comfort care team," says Tolle.

"Our hospital has taken seriously the idea that the vote was probably about a lot more than assisted suicide. The people of our state made a serious comment on the care of the dying, and it is something we needed as an institution and a profession to hear," she says.

Tolle says that only a "very small number of people will ever utilize this option if it becomes legal. But a huge percentage want other degrees of control in the dying process. Most went into the voting booth with vivid memories of a spouse, friend, or neighbor whose dying lacked something they felt powerfully about. They had prolonged suffering of one type or another and felt the medical community was not as responsive as it could have been."

Focus on Comfort

The issue is often not so much pain as comfort, such things as shortness of breath, itching, fluid overload, or mouth and skin care, "things that have a major impact on the quality of life but have not received academic stature," says Tolle.

To change that, the comfort care team will try to give hospice-level attention to patients who are not ready for a hospice. Now, only 10% to 15% of dying patients receive hospice care. Most have cancer, and only receive such care in the last two months of life because enrollment requires that physician, patient, and family all "essentially give up hope of a cure. That has proven to be a pretty big obstacle," says Tolle. "Large groups of patients don't have a focus on comfort at the end."

The comfort care team, it is hoped, can act as "a bridge so there is not such a wide chasm to jump across between curative care and the hospice," says Tolle. It will go into the intensive care unit, oncology clinic, and other places "where the hospice has traditionally not found a home because hope of a cure was still being pursued. That's a huge change in mind-set."

Better attention to pain and comfort is all well and good, says Fieger. Yet there will still be some patients for whom pain cannot be controlled. "If by pain control you mean doping somebody up so they're unconscious in some kind of coma before death, I don't want that. If you are talking real pain control, it can't be done all the time, for instance with bone cancer."

Fieger says the most illustrative case is Kevorkian's 20th patient, Ali Khalili, M.D. He was an associate clinical professor of physical medicine and rehabilitation at Northwestern University School of Medicine, Chicago, Ill. "He was a pain specialist, he could get any kind of pain medication, but he came to Dr. Kevorkian. There are times," says Fieger, "when pain medication does not suffice."

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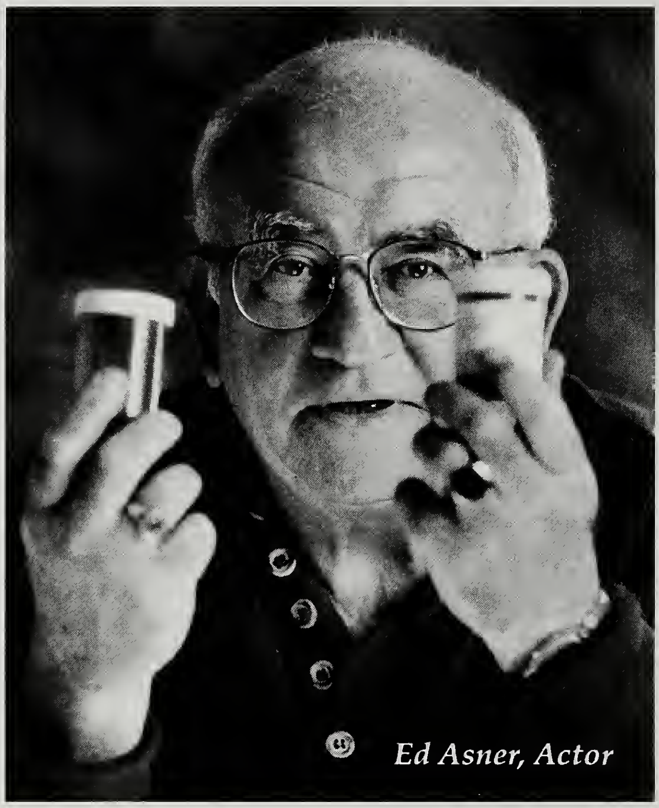

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America's Social Ills and Our Health-Care System: An Interview with Dr. Leroy Schwartz

CAROLYN ROGERS

The lengthy debate over health-care reform has focused on one aspect of our health-care system—its escalating costs. The conclusion that U.S. health-care costs are higher than they should be is perhaps one of the few subjects on which individuals on nearly all sides of the debate have agreed. The cause of these escalating costs, however, has been the subject of much dissension.

Leroy Schwartz, M.D., president of Health Policy International, a not-for-profit research organization in Princeton, New Jersey, has spent the last four years researching that very subject—the reasons behind the high cost of health care in the United States. His findings have been published by the AmHS Institute in a special Report entitled *The Medicalization of Social Problems: America's Special Health Care Dilemma.* The following questions and answers are excerpted from a recent interview with Dr. Schwartz and should provide Fellows of the College with an interesting perspective on why this country's health-care system is the costliest in the world.

Q Dr. Schwartz, do you think that many of the issues being discussed in the current debate—for example, universal coverage, employer mandates, managed care—accurately address the problem facing the health-care system in this country?

A Unfortunately, I think we have seen a reform of medicine by slogans. The employer mandate, for example, is not paid by the employer; rather, it's paid by the employee or worker. Managed care is not managed, but is based mainly on cost and in the long run will lead to mediocre care. The question of universal coverage has been debated as to what "universal" is: Is it 93%? Is it 90%? Is it 95%? I always thought that universal coverage meant 100%. So another phrase, "universal coverage," has emerged that has little meaning to the American public and serves only to cloud the real issues in the health-care debate.

Q Then what do you think the issue facing the health-care system really is?

A The real issue, at least in part, is the social problems facing this country. However, our policymakers do not appear to see the connection between social problems and health-care costs. We are avoiding this issue, and yet it greatly affects our health-care system. Social pathologies such as poverty, the breakdown of the family structure, substance abuse, unsafe sex, homelessness, and violence end up in the emergency rooms and intensive care units of our hospitals. We are dealing with a situation in which the social problems of our country have become medicalized and require expensive medical treatment.

Q What do you mean by the "medicalization of social problems"?

A Medicalization is describing a social problem in medical terms, then paying for the treatment through our health-care system. That's part of the reason why our total health-care expenditures appear to be so high. For example, we have taken gambling and called it a medical condition. It is often termed "depression" by health-care

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professionals, and treating it is paid for with the health-care dollar. We've done the same thing with drug abuse. When these social problems become medicalized, not only does it contribute to our escalating health-care costs, but we also take away the idea of individual responsibility. I don't see how gambling and breast cancer can both be called medical problems. However, in our country, both breast cancer and gambling are so classified and are paid for as medical problems. Now we have people advocating violence as being in the field of public health. Violence is another issue with social roots that is being addressed as a health-care issue. In other countries, social problems are paid for by the social system, and medical problems are paid for by the health-care system. I think that Americans, by and large, are not very prone to pay for social problems, so the preferred way to obtain funds for these problems is to include them in the health-care budget.

Q How are Americans' medical needs affected by our nation's unique social problems?

A Our research has shown us that America has much more diversity than other countries—a special type of diversity. We have more poor people than other developed countries do, and we have relatively more people engaging in risky behaviors, the results of which cost our society a great deal of money. These risky behaviors are, in essence, social problems, but their costs end up being paid for by our health-care system. This situation is very different from that in Sweden, Germany, Canada, and other countries whose problems with health-care costs, while pressing, are of a much lesser magnitude.

Q What do comparative international mortality rates tell us about America's dilemma?

A I believe that infant mortality rates, for example, are more a function of a country's social conditions than an indicator of how the health-care system is structured and how it performs. Again, it is social problems, like poverty, that produce the difference between this country and other countries in terms of its mortality rates. In this country, there is a drastic difference in infant mortality rates among the states. Some states, such as Maine, Vermont, and New Hampshire, rank among the top 10 countries in terms of their low infant mortality rates. For the most part, our poorer states have much higher infant mortality rates, and they bring down the average. Fundamentally, these states have the same health-care system as other states, but they have poorer economies and larger minority populations. Their social problems are very different, and this difference is reflected in the data. Our country's health-care system has to cope with a much higher number of patients whose illnesses are caused by social conditions.

Q How do poverty and medical indigence affect the health-care system?

A As much as 20% of the U.S. population is said to be at the poverty level, meaning that these individuals can pay very little, if anything, for their own health care. Another 30% of American families are considered medically indigent. That is, they can pay for their clothing, shelter, car, and food, but they would have great difficulty paying for health care. When you put those two groups together, close to 50% of families in America cannot pay all or even most of the cost of their health care. If insurance coverage is extended to them, the rest of the population will have to pay for these families in addition to themselves. To a large extent, that is what we are already doing. This situation, combined with the medicalization of social problems, is part of the reason why our health-care expenditures are so high.

Q Do behavioral risk factors play a role? Do we have more of them than other countries do?

A Yes. Our population has tremendous behavioral risk factors—more than any other developed country in the world. These behaviors, such as drug abuse, unsafe sex, and violence, cost a great deal of money once they result in health-care problems. We have more AIDS cases than any other developed country, and that disease will cost us about $15 billion by 1995. Our AIDS case rate is more than four times that of Canada, and it is more than seven times that of Germany. The United States also has one of the largest drug abuse problems in the developed world. Our drug abuse rate is almost double the Canadian rate, triple the German rate, and 30 times higher than the British rate. And our drug problem, in turn, leads to violence. We have the most homicides and serious assaults of any country in the world. Our homicide rate is nearly double that of Germany, and it is four times the homicide rate of Great Britain. Our serious assault rate is more than three times the Canadian rate, and it is more than 11 times Italy's serious assault rate. In these ways at least, we are very different from other developed countries.

Q How much do these problems influence our health-care system?

A We spend $6 billion on gambling, $50 billion on smoking, $7 billion on substance abuse, $50 billion on alcohol abuse, and so forth. When we say that other countries are spending much less than 14% of their gross national product on health care, the figures just aren't comparable. Other countries spend a third or close to a third of their GNP on social problems. For example, Germany spends about 35%. The United States spends only about 15%. As I see it, we are paying for many of our social problems with our health-care dollars, and European countries are paying for conditions that we would classify as "health care" with their social dollars.

Our societal attitudes, and not necessarily our health-care system, also create immense costs. One-third of our Medicare budget is spent preserving the lives of terminally ill people, whether they want to be saved or not. We also spend a huge amount on saving premature, high-risk babies, while other countries have made the societal decision to withhold this treatment.

Q How do we solve this problem?

A I think we should take all of the costs related to the medicalization of health-care problems, violence, poverty, and societal attitudes and record them in a ledger from which we will pay for social problems. Instead of health-care costs of $900 billion, we would have health-care costs of around $600 billion, and health-care costs resulting from social problems would be around $300 billion.

Q What is the value of placing these social costs in a "social ledger"?

A If we did that, perhaps we would not be in such a hurry to change our health-care system without being able to predict how the changes will turn out. There's no sense in dismantling our health-care system, because it is not to blame for many of the problems it is trying to cope with. We have the best health-care system in the world—the best physicians in the world.

I will give you an example of this misapplication of blame. Last year, Tom Brokaw did a one-hour television program. The first part of the program was set in the emergency room at Temple University Hospital in Philadelphia, PA. First an ambulance was shown racing to the scene, lights glaring, sirens blaring. A man who had been shot and stabbed was removed from the ambulance, rushed down the hall, and was taken care of by 11 people. Two minutes later another person was brought to the emergency room, same situation. It went on like this all night and all day. Then, at the end of the program, Tom Brokaw said "See? We really have to change the health-care system."

Using the best, most costly equipment in the world, our health-care workers, including doctors, nurses, and paramedics, are making heroic efforts every day to save people from gunshot wounds and drug overdoses. Yet, our population keeps our emergency rooms full, and our health-care system gets the blame for the costs.

Our health-care system cannot be improved until this inordinate demand for care is reduced. We have to look at what is causing this demand for care, and that is what we have to prevent. The members of Congress are addressing the wrong problem. They think that if they change the health-care system, they will somehow help to reduce demand and reduce costs. But, in fact, our health-care system is having difficulty responding to the demands placed upon it. It's just not able to take care of all the pathology that is being produced by America's social problems. Our efforts to cope with these social problems is threatening the financial viability of many vital health-care institutions. For example, coping with the aftermath of drug-related violent crime, drunk driving, and other risky behaviors not only adds to our nation's health-care expenditures, but is proving to be financially devastating to many of our trauma centers and threatens access to expert trauma care for anyone who is severely injured.

The health-care system is not the only system facing this dilemma. The welfare system has this same problem, as do the criminal justice, education, and immigration systems. They are all over loaded, and it's wrong to assign blame to the systems themselves. We have to focus on and address the real issues rather than continuing to place band-aids on every little problem, and possibly destroying the health-care system in the process. We will never get the total cost of health care under control as long as there is a large number of people who, as a result of social problems, produce more and more demand for health-care services.

Q Do you think people should be penalized for engaging in legal but high-risk behavior, such as smoking, unsafe sex, poor eating habits, or lack of exercise?

A I think it is difficult to penalize people, poor people in particular, for their problems. Instead, we need to figure out how to address these problems and reduce the demand for health care. We have to attack the socioeconomic problems that we see across the country, in every inner city and elsewhere. Many of these people end up in our health-care system, whether it's from alcoholism, drug abuse, violence, or becoming mothers at too early an age. This country has to make a commitment to resolving our social problems before they become medical problems.

Q How do you suggest we attack these social problems?

A Maybe it's not the role of the government, maybe it's an issue of individual responsibility. It might be that we have to work at it from the pulpit, and at the community level, block by block, door by door, family by family. Like what we've done to a certain extent with drunk driving.

There was a change in values back in the 1960s and certain things that were considered to be unacceptable to do became acceptable. As Senator Daniel P. Moynihan (D-NY) wrote in his 1993 article, "Defining Deviancy Down"*: "We have been redefining deviancy so as to exempt much conduct previously stigmatized." We have to undergo a social upheaval similar to what we went through in the 1960s, except we have to change the direction of our thinking. We somehow have to make behavior such as teenagers having children out of wedlock unacceptable again in terms of the values of our society. The President picked up on that idea when he went to an inner-city high school in Washington, DC. He told the students that if they were thinking about having a baby, "Don't, because you're in school, you're getting your education." That's what our leadership needs to be telling people, especially in areas where this conduct is becoming more and more of a problem.

But I'm not a sociologist. I'm just trying to focus attention on the fact that the true problem is not the health-care system, but all of our social pathologies that are being fed into it. People seem to want the answer before they recognize the problem.

Q How does the medicalization of social problems affect the health-care debate?

A The medicalization of social problems has helped to sidetrack us from dealing with the serious problems we face in this country. We're debating the wrong issues. And, as long as we continue to label and view our social problems as medical problems, we won't solve anything. We need social reform first if we ever expect to improve our health care system.

The Health-Care System Pays for More Than Health

I. Medicalization of social problems ($143.1 billion)
  A. Alcohol abuse ($50 billion)
  B. Gambling ($6 billion)
  C. Childhood disability ($1 billion)
  D. Smoking ($50 billion)
  E. Drug abuse ($6.7 billion)
  F. Unsafe sex
    1. AIDS/HIV ($15.2 billion)
    2. Pelvic inflammatory disease ($4.2 billion)
  G. Violence ($10 billion)
    1. Homicides
    2. Assaults
    3. Rape
    4. Arson
  H. Tuberculosis

II. Poverty and medical indigency ($25-50 billion)
  Sicker population, legal/illegal immigrants
    a. Later attention to problems
    b. Lack of immunizations
    c. Lack of preventive care
    d. Increased care and cost

III. Cultural attitudes of society ($53.7 billion)
  A. Saving all high-risk babies ($3 billion)
  B. Elderly treatment at end of life ($30 billion)
  C. Malpractice ($20.7 billion)

IV. Fraud and abuse ($93.0 billion)

Source: Health Policy International, 1994.

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*Moynihan DP: Defining deviancy down. *Am Scholar,* Winter 1993:17-23.

50 Years Ago

From *The Connecticut State Medical Journal*

July 1945

Editorial

The Wagner Bill—1945
S. 1050

Senator Wagner and his echoes, Senator Murray and Representative Dingell, have introduced the 1945 version of the Wagner Social Security Bill before the Congress of the United States. It appears that Senator Wagner is impressed by the favorable response from medicine, hospital experts and other important professional groups to the Hill-Burton Bill which would provide Federal funds to study health needs in the several states and funds to subsidize hospital, laboratory and clinic construction where needed in the opinion of the states. All of the purposes and most of the provisions of the Burton Bill are included in the new Wagner Bill, S. 1050, entitled "Social Security Amendments of 1945."

It is an old political trick that Senator Wagner is employing. Combining desirable and favored legislation with other measures less desirable and easy to take is a time honored device and is sometimes successful. In this instance people will be asked to take the undesirable and revolutionary Wagner health insurance proposals if they wish to get the hospital subsidies that have been favored. There are many other provisions in the bill also. Broadly speaking it would establish a national social insurance system consisting of prepaid personal health service; unemployment and temporary disability insurance benefits up to $30 a week on a uniform national basis; and retirement, survivors and total disability insurance with more liberal benefits than in present law. It would provide grants to states for the expansion of health services, maternity and child welfare services and would extend the coverage of the social insurance system to an estimated 15,000,000 additional workers—farm and domestic workers, employees of non profit institutions, independent farmers, professional persons and small business men.

The *New York Times,* previously largely in favor of Senator Wagner's proposals, has this to say: "It is a central aim of social progress to mitigate the hazards of unemployment, need, sickness, disability and old age for the individual. Every step is to be welcomed by which this can be done without itself introducing equal or greater hazards. This indicates the questions to be asked of a proposal like the Wagner-Murray-Dingell bill. Will it provide relief where it is needed without producing it where it is not needed? Will it mitigate the penalties for failure or misfortune without weakening the incentives to production and success? Will it provide aid to individuals without making them politically dependent and without dangerously extending the power of the central Government?

"Under the bill as it stands it is more than doubtful whether these questions can be answered satisfactorily. Even under the present social security program we face problems for which we have not yet produced adequate answers. Yet under the new bill vast new programs would be undertaken and existing programs would be tremendously 'liberalized.'... For example, a schedule is provided under which a worker making when employed an average of $40 a week could draw as high as $30 a week unemployment benefit. Would not such payments tempt the creation of the very unemployment they are designed to meet? If a man who can get $40 a week for working can draw $30 a week for not working, then so long as he is entitled to draw benefits he is in effect working for only $10 a week; that is the way many will naturally look at the

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Reprinted from the *Connecticut State Medical Journal*, July 1945.

matter when they are asked to take a job, or when they consider giving themselves a vacation at government expense."

An 8 per cent tax would be levied to finance this new cradle-to-the-grave security service. Four per cent would fall against the employer, a similar amount against the worker. Senator Wagner's Bill of last year was less inclusive than the present but a 12 per cent tax was called for in the previous measure. It seems fairly obvious to Washington observers that the clique endeavoring to extend social security and create national health insurance know that if adequate direct taxation is written into the measure it will defeat it and so taxation only partially capable of supporting the great expenditures involved is provided in the bill itself and the deficit financing will be undertaken through the maintenance of present high income surtax rates.

Discussing the financing, the *Times* says, "The tremendous financial commitment involved in the Wagner-Murray-Dingell Bill ought to involve the most careful study, even in a period when the budget is balanced and on a relatively manageable level. To undertake it lightly at the present time, when the budget is already unbalanced to an unparalleled extent by the war, and when the path back to balance and manageability is already far from clear, would be an assumption of obligations without considering how they are to be paid."

To the people at large the financial considerations are far more important than any opinion on health insurance that the medical profession might hold, but it is still national health insurance or the provision of medical care by Government. Although it has been stated to the contrary, it is not clear how a sick person is to have the services of the physician of his own choice if that physician does not elect to participate in the system and accept recompense set arbitrarily for him by the Government agency.

It has been forecast that the Bill will have a stiff fight in the Congress and it may be 1946 before serious consideration is given to it.

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Health Care and the Budget

The recent Republican victories in the House and Senate have at long last brought our nation to the brink of fiscal responsibility. Unlike the many previous attempts at balancing the budget, this time there appears to be the political will to make it happen. With the interest payments on our national debt already consuming 15% of our tax dollars, the time for change is now.

A balanced budget is the first step to reducing our debt. Rep. Kasich and the House are calling for nearly 1.4 trillion dollars in cuts over the next seven years, of which 353 billion are required to pay for tax cuts. This is an ambitious proposal, but from which programs will the savings come?

No one wants to cut defense, 17% of the budget. No one can cut interest payments (15%). And no one has the courage to touch Social Security (21%). That leaves Medicare (11%), Medicaid (6%), nonmedical entitlements (15%), and all other government spending (17%). Thus 100% of the cuts must come from only 47% of the expenditures. Over the next seven years, the House is proposing to save 288 billion from Medicare and 187 billion from Medicaid by cutting their projected rates of growth nearly in half. These cuts will come despite increasing enrollments in both programs.

Reform is obviously necessary. Deficit spending is already too great to support the current Medicaid projections, and the Medicare Part A trust fund will be insolvent by 2002. But can we cut these programs so much and so quickly without seriously jeopardizing the care given to their beneficiaries?

Republicans say that these cuts can be recouped from the savings following a shift to managed care. This is most unlikely. To date, managed care has actually cost more than it saved by cherry-picking the healthiest 7% of the seniors for enrollment. Extension to larger segments of the Medicare and Medicaid population, to those with more costly medical needs, will not produce the cost savings the politicians promise. They certainly won't do it within seven years. And many enrollees will not easily accept managed care's limitations on provider choice.

More likely there will be further providers' cuts. Always politically more acceptable, we can expect reimbursements to fall even further below the already low 59% for Medicare and 47% for Medicaid of private payor rates. This will only further limit access to medical care as physicians restrict their Medicare/caid practices. And reductions in reimbursement will exacerbate cost shifting, which already is unfair to the private sector and responsible for the growing number of uninsured.

Given that a balanced budget is essential, and given that some cuts in government health programs are inevitable, what can we physicians propose as the most equitable and least traumatic reform?

Start with the amount of cost savings necessary. The proposed tax cuts exacerbate the already severe cuts in Medicare and Medicaid. While all of us would like to see tax rates reduced, the tax cuts should be delayed until the effects of the spending reductions are fully evident. Postponement of tax cuts would soften the budgetary axe on health care spending. Such a zero sum solution provides a middle ground to placate both ends of the political spectrum. The Senate seems to agree. Its budget proposal calls for much smaller tax cuts, enacted only after the economy improves with deficit reduction.

Second, and more importantly, we must reconsider the whole entitlement philosophy. Only about a quarter of the dollars spent on such programs are based on need. Social Security must be put back on the table, not matter how politically difficult that is. With the average retiree getting back his entire social security contribution with interest in about seven years, the payout is much greater than that to which he or she is "entitled." The same is true for Medicare,

(continued on next page)

where benefits far exceed contributions. Make the programs income based, thus preserving them for the truly needy and reducing the tax burden on the diminishing number of workers who are today paying for these benefits.

In addition to need-based eligibility, raise the age at which benefits begin. With the rapidly increasing life span of Americans, the eligibility age of 65 for both Social Security and Medicare is a demographic anachronism we can no longer afford. We must change the eligibility rules, and start doing so now, perhaps with a "length of living" adjustment to periodically correct for our aging population. Those of us who may thus see our benefits denied until age 67 or 68 will be mollified if our tax rates today are proportionately reduced.

Third, we should work to privatize medical care for our seniors. Such Republican ideas as medical vouchers and medical savings accounts will both increase choice for our seniors and encourage financial accountability. We might also limit or tax the benefits of Medi-gap policies, so that seniors cannot escape from direct cost sharing and thus insulate themselves from considering the cost as well as the quality of their care.

Fourth, we should truly make use of the free market approach by eliminating cost controls on Medicare fees. Such controls, in place already more than a decade, have done nothing to reduce medical inflation and have only exacerbated cost shifting. Instead, physicians could publish their own "conversion factors" for an RBRVS scale, allowing patients to comparison shop if they so choose.

These are only a few of the many issues a balanced budget will raise for the practice of medicine. While neither the House nor the Senate has proposed comprehensive health-care reform, their fiscal policies may be as far reaching as any Clinton health plan. Physicians must remain politically vigilant and active as the budget process continues. Our patients and our profession deserve no less.

Dickerman Hollister, Jr., M.D.
President

CORRECTION

In *The Physician as Poet*, May 1995 issue, page 304, the poem titled *Hospice* a line was inadvertantly left out. The poem is reprinted below in its entirety.

Hospice

We have seen Death
We are the harbingers of Death.
Yet we bring calm when fear prevails,
Relief when pain blocks Living before Dying.
We see Death come peacefully
    to one, who in the fullness of years
    welcomes him with a half smile.
We see him hover and wait
    until a loved one comes
    or a task is finally done.
We see him spurned by those who cry
    "He is not here for me"
Is there a spirit that conquers Death?
We see glimpses now and then,
    but the answer will come to us all
    if we but wait.

Stewart P. Seigle, M.D.

REFECTIONS ON MEDICINE

Health Care Ethics: Whence Come the Basics?

ROBERT U. MASSEY, M.D.

AFTER the ethics committee members had read though the first case report at their quarterly meeting, it was clear from their earliest tentative remarks that major differences would divide the group during the rest of the meeting. The report itself even hinted at unresolved conflicts among the staff who had been involved with the case. As the hour drew to a close we had moved only a little toward a common understanding of the issues themselves, how to define them, what ethical matters were at stake, how now to proceed. In a secular culture like ours where there are no commonly acknowledged moral authorities, discussions of this kind often simply run down for want of energy and the will to pursue them further. One member suggested we devote the next meeting to getting back to basics. Unfortunately, like professional educators, we will hardly ever agree on the basics.

The reason, of course, is that ethics is plural. Twenty-five years ago our first German exchange student and I were, not surprisingly, talking about the 13 dreadful years of Nazi rule in his country. He wondered why so many of his parents' generation had been taken in by this diabolical regime, "We are, all of us," he said, "after all members of the same Judeo-Christian tradition." I think I reminded him that, in that sentence, tradition was a plural noun. Greek, Roman, North African, Jewish, Armenian, Celt, German, Slav—which Judeo-Christian tradition, and from what period and according to what authority?

One ethicist I know began his first lecture with the hardly original admonition: "Just always do the right thing." C.S. Lewis in his book, *The Abolition of Man,* writes of the *Tao,* the Way, by which he meant the Natural Law or Traditional Morality: "It is the sole source of all value judgments. If it is rejected, all value is rejected. If any value is retained, it is retained." This is not far from Lewis Thomas's notion, or hope, that altruism is an impulse that we share with other creatures, something inherited, carried in our genes. "Among the most intensely social species it is a commonplace event, part of any day's work, for one individual member to sacrifice his life in aid of the community."[1] C.S. Lewis would have called that impulse an instinct and declare that it therefore lacked the authority of Natural Law, which, he would say, we can discover by reason (assisted by grace?). The Enlightenment philosophers thought so too (leaving out grace). They believed that by reason, we could construct a universally acceptible foundation for all ethical decision making. Immanuel Kant began with his categorical imperative and his rule that one must not use persons as means to ends, certainly not without their permission. We have learned after more than 200 years that these Enlightenment philosophies, as sound and hopeful as they seem, possess little power to bind, unless they are written into constitutional law and carry the enforcing power of the state.

An increasingly smaller number still are governed by the mandates of a Supreme Lawgiver which, by reason of their Source, are not subject to question or debate. The laws that bind believers are given as revelation and are accepted by grace. Because their numbers grow smaller in today's society, we need such structures as ethics committees and such specialists as bioethicists to compel us to compromise. Only within the exclusive fellowship of their smaller community can the members of a religious group, true believers, resolve ethical questions with the certainty that each member will, or should, understand the issues and be bound by a consensus.

However, when these matters come before a group comprising believers, half-believers, and nonbelievers alike in the secular setting of a peaceable committee, absolutes are out and so, of course, is resort to compulsion; compromise is the only resolution possible. Such compromise is generally unsatisfying and lacks the moral authority that binds. But the meeting ends; the principles of bioethics are invoked: autonomy, beneficence, nonmaleficence, and justice; someone mentions the Oath; and another reminds the group, most of whom by now have grown a little in moral reasoning, that there are rarely right or wrong answers, so we should not be downcast.

"That conclusion," wrote Paul Ramsey, "I regret, since medical ethics worked better when moral consensus was intact and there was less need for ethical reflection and analysis."[2]

ROBERT U. MASSEY, M.D., Professor Emeritus, Division of Humanistic Studies, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington.

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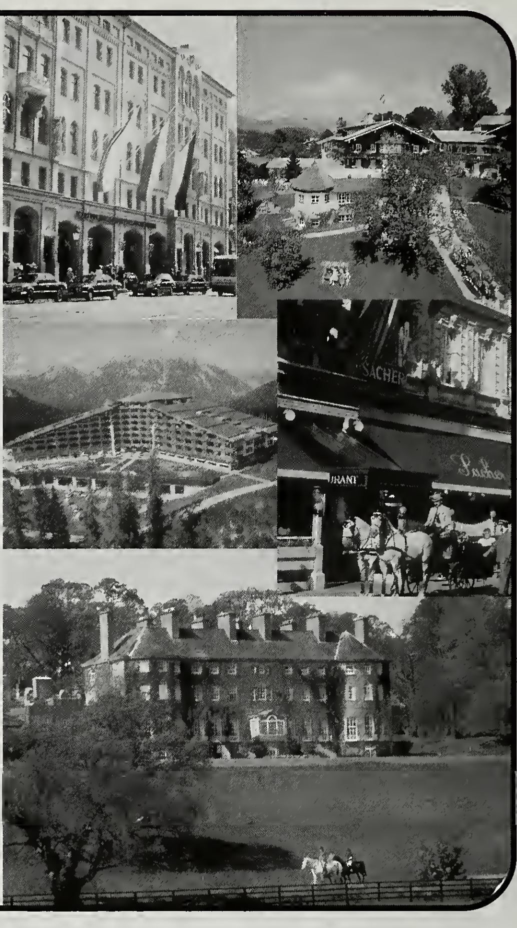

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This Month's Reading in Review

TIMOTHY B. NORBECK

"Every time I think about what drives our liability system, a simple mathematical formula comes to mind. If a jury awards $1 million, the patient's own lawyer walks away with at least $333,000. Let's not be naive. That's why the lawyers want things to stay the way they are. They're getting rich, and my patients are paying for it."

AMA President Bob McAfee, M.D., in
New York Newsday (24 May 1995)

"All too often, litigation in America is a lucrative, lawyer-driven enterprise in which the client is not in control and is almost incidental.."

Columnist John Leo in
U.S. News & World Report (22 May 1995)

"A contributor with entirely too much time on his hands points out that if you drop the first and last letter of the New York area's three National Hockey League franchises—the Devils, Rangers and Islanders—you get Evil, Anger and Slander. And a great name for a law firm."

Columnist Tom Weir *USA Today* (19 May 1995)

The average American works 2 hours 46 minutes in an eight hour day to pay federal, state and local taxes.... The states where workers put in the most time:

- Connecticut and New York—3 hours 9 minutes
- D.C. and New Jersey—3 hours 1 minute
- Hawaii —3 hours

USA Today Snapshots (19 April 1995)

On May 19, a Queens, N.Y., teenager became a medical doctor at age 17.... Blamurali Ambati received his M.D. degree from Mount Sinai School of Medicine, which said that he was the "youngest doctor ever".... Dr. Ambati moved to the U.S. from his native India at age three, finished two elementary school grades each year and graduated from high school at age 11.... That year, he co-authored a book on AIDS with his brother, which won an award from the AMA.

Associated Press (20 May 1995)

AMA President-Elect Lonnie R. Bristow, M.D., urged Congress to pass the AMA-backed "Patient Protection Act" because "administrators—not doctors—of health maintenance organizations are setting standards of patient care".... Dr. Bristow said "it's OK for HMOs to reward doctors for being efficient, but we need safeguards to ensure that corporations don't put profits before the quality of patient care."

St. Louis Post Dispatch (25 May 1995)

According to a new report released by the AMA, more than two-thirds of U.S. physicians are providing over $21 billion in uncompensated care to patients in financial need.... Some 307,650 physicians rendered $11.31 billion in charity or reduced-fee care to patients in need during 1994, and absorbed an additional $9.82 billion in services for which payment was expected but never received.

NOTE: Nearly 68% of U.S. physicians provided free or reduced-fee care in 1994, a significant increase from 62% in 1988.... Physicians spent 12.4% of their work time, more than one out of every 10 hours, on charity care.... On average, a physician devoted 7.2 hours per week caring for the poor, up from 6.5 hours in 1990.

AMA release (26 May 1995)

More than 35,000 children receive medical care for injuries each day at a cost of $13.8 billion a year.

A May release from U.S. Representative
Jim Moran's office (Va.)

According to a study released by the Physician Insurers Association of America, breast cancer treatment accounts for more medical malpractice claims than any other condition.... Overall, 44% of breast cancer malpractice cases result in awards for the plaintiff.... The average award in 1994 was $307,000.

USA Today (2 June 1995)

Only in America: The new drunk driving defense has been approved by trial courts in two more states—Connecticut and Texas. These courts followed similar rulings in Alaska, Arizona, Colorado, Florida, Idaho, Kansas, New York, Ohio, Virginia and Washington.

The courts held that where a driver had a license suspended after a failed breath test, he or she could avoid a criminal trial because this would be "double jeopardy."

From an article in *Lawyers Weekly USA* and
published in *Fortune* (12 June 1995)

TIMOTHY B. NORBECK, Executive Director, Connecticut State Medical Society.

Letter to the Editor

Letters to the Editor are considered for publication (subject to editing and abridgement), provided that they are submitted in duplicate, signed by all authors, typewritten in double spacing, and do not exceed 1-1/2 pages of text (excluding references). They should not duplicate similar material being submitted or published elsewhere. Letters referring to a recent Journal article should be received within six weeks of the article's publication.

Public Health Policy Must Conform to Reality

To the Editor: The practice of medicine and of public health are highly professionalized in Western society and for good reason. The interface of medicine and of public health with public policy is complex and perpetually challenging. While the development of public health policy is also a professional task, it generally requires extensive dialogue and the weighing of values. *Connecticut Medicine* intruded on that process in a curious, indeed inexplicable, way by reprinting an extreme activist view of "safe sex" in the May issue. The author, a lay person associated with the Christian right, affirms commitment to monogamous marriage and to chastity premaritally and presumably postmaritally as the adequate and necessary modality to address HIV transmission. I share with him, as do most Americans, a view of the importance of monogamous marriage and of extramarital chastity, but these are values, not public health modalities. A pluralistic democracy must encompass the welfare of all society. Public health is a large part of the benefits that are to be shared equitably in a just society.

Let us just take a look at whose health will allegedly be served by chastity outside of monogamous marriage in the HIV realm.

About 50% of those who have advanced to AIDS in the U.S. to date are men who have sex with men. Since they are forbidden to marry, they are officially totally excluded from Mr. Wright's scenario. Are they unworthy of inclusion or discussion? Is his plan for them passive extermination or malignant neglect? Or are they supposed to metamorphose miraculously into heterosexuals or to renounce sex?

About one third of HIV transmissions in the U.S. involve shared drug injection equipment. Monogamous marriage bonds or chastity outside of marriage are both fully permeable to transmission by needle. I do not favor injection drug use, but we cannot ignore the facts of the epidemic. Does Mr. Wright actually envision all users stopping spontaneously and entering monogamous marriages?

Teenagers and young adults in our nation are usually not chaste. There are also unmarried adults of all ages—widowed, divorced, and separated, who are not chaste. Even if we believe we can advise teenagers and young adults to wait for the beauty of marital sex, do we seriously think they will listen? They never have in the past. Our public health duty is to give good advice to those who will listen and to give good advice to those who may not listen. Do we wish to exterminate those who don't listen?

As for unmarried adults, do we seriously believe that they will opt for chastity even if we would like them to do so? Adult humans do not, in general, opt for chastity. Is the message to be—be chaste or die? We have the alternative option of safer sex to offer them.

Mr. Wright envisions ideal, mutually monogamous, lifelong marriages—of course only for heterosexuals. In truth, most Americans are not virginal at marriage and thus can bring HIV infection to the marriage and some large proportion of married men and women are not monogamous. We know that.

Among heterosexual Americans who are HIV infected and do not use drugs by injection, probably none are monogamous and many are not married. Some exchange sex for drugs or money.

The "good" people who are truly chaste before and outside of marriage are not a public health issue. The people who are actually vulnerable to HIV need advice and guidance about safer sex and safer drug use practices. They are the proper target of public health education and prevention programs.

Mr. Wright attempts to undermine confidence in the efficacy of condoms by carefully selected and misleading references. The efficacy of condoms is well established. The principal reason they fail is that they are *not used.* The way to address nonuse for public health purposes is to educate, encourage, and promote use—not by the chaste but by the people who are actually HIV vulnerable. Public health has to address public health agendas—the health of those who are vulnerable to disease—not the agendas of the Christian right.

These are the truths. Nonmonogamous vaginal and anal sex are risky. It is appropriate to promote monogamy but then it has to be promoted and supported, of course, for gay men as well. Even then most Americans, certainly the overwhelming majority of those vulnerable to HIV, are not in monogamous marriages and they will not abandon sex. For them we propose methods for greatly reducing risk. There are many, but the cornerstone is the consistent and appropriate use of condoms. Condoms are very effective—not totally so.

Why would *Connecticut Medicine* wish to undermine such an established set of carefully and decently crafted public health programs? Why?

Alvin Novick, M.D.
Professor, Yale University

Physicians and the Department of Health

To the Editor: Recently there has been a spate of articles and letters dealing with Connecticut physicians who have had dealings with the Department of Health.

The descriptions from these physicians have had a tone of some horrendous inquisition dating from medieval times. The department has become judge, jury, and expert in medicine, although they are state-paid attorneys. The rules of evidence and conduct are completely of their own making, and leave most attorneys in a quandry about evidence and rules set by the department.

I would be interested in hearing from other physicians about their own experiences with the department. This is in preparation for a book to guide the Connecticut doctor in his defense from this inquisitory department.

Please do not send information. Your name and address would be sufficient at this time while we collect data. The individual experience with the department will be explored later with the help of trained attorneys who have some understanding of the ways the Department of Health functions.

Joseph D. Waxberg, M.D.
65 Prospect Street, Stamford, CT 06902

Symptom of Persistent Fatigue

To the Editor: I was dismayed by the article in your 50 Years Ago Department, "What is the matter with the patient who is always tired?" by Walter C. Alvarez (*Conn Med* 1995; 59:233-6). While the presentation of the article as a 50-year-old paper should qualify its crediblity, the unfortunate truth is that the symptom of persistent fatigue is still not taken seriously by many physicians. Whereas nonprofessional samples rate fatigue as one of their most important symptoms, physicians, including psychiatrists, rate it as one of the least important (Lewis and Wessely, 1992). Signs and symptoms of illness that can be documented with diagnostic tests and laboratory studies will find a more receptive medical audience than symptoms that do not easily yield to established diagnostic categories.

As the writer is apparently a psychosomatic medicine expert, it is important to note that the concepts of psychosomatic medicine have changed considerably since 1945. In the current fields of psychosomatic and behavioral medicine, chronic medical conditions are considered to be multidetermined rather than purely psychological or physical. Disease activity is the outcome of genetic, biochemical, behavioral, and psychosocial influences (Engel, 1977).

The notion that the absence of demonstrable organic pathology proves psychogenesis of the patient's complaint represents faulty scientific thinking. Furthermore, the presence of a psychiatric problem does not preclude the existence of a difficult-to-diagnose medical condition. For instance, Lyme disease presents significant neuropsychologic symptoms such as fatigue and cognitive impairments. Psychiatric symptoms (eg, depression) secondary to a disabling condition such as Lyme disease may be an understandable reaction to the disabling effects of the disease.

For individuals with unexplained, disabling chronic fatigue, an unfortunate antagonism may develop between the physician who cannot offer a definitive diagnosis or an effective treatment, and the patient who may be angry about the attitude of condescension and rejection from the physician who minimizes the patient's complaint.

Although this is clearly a dated article, I'm afraid it will merely reinforce the traditional mind/body dualism (Ware, 1993) that continues to undermine the doctor/patient relationship.

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CSMS PHYSICIAN PLACEMENT SERVICE

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***Opportunities* should be typed, double-spaced copy on letterhead and submitted to CSMS, Physician Placement Service, 160 St. Ronan Street, New Haven, CT 06511 (203) 865-0587 or fax to (203) 865-4997. These will be published as space permits and will be distributed to physicians making inquiries of such *opportunities*.**

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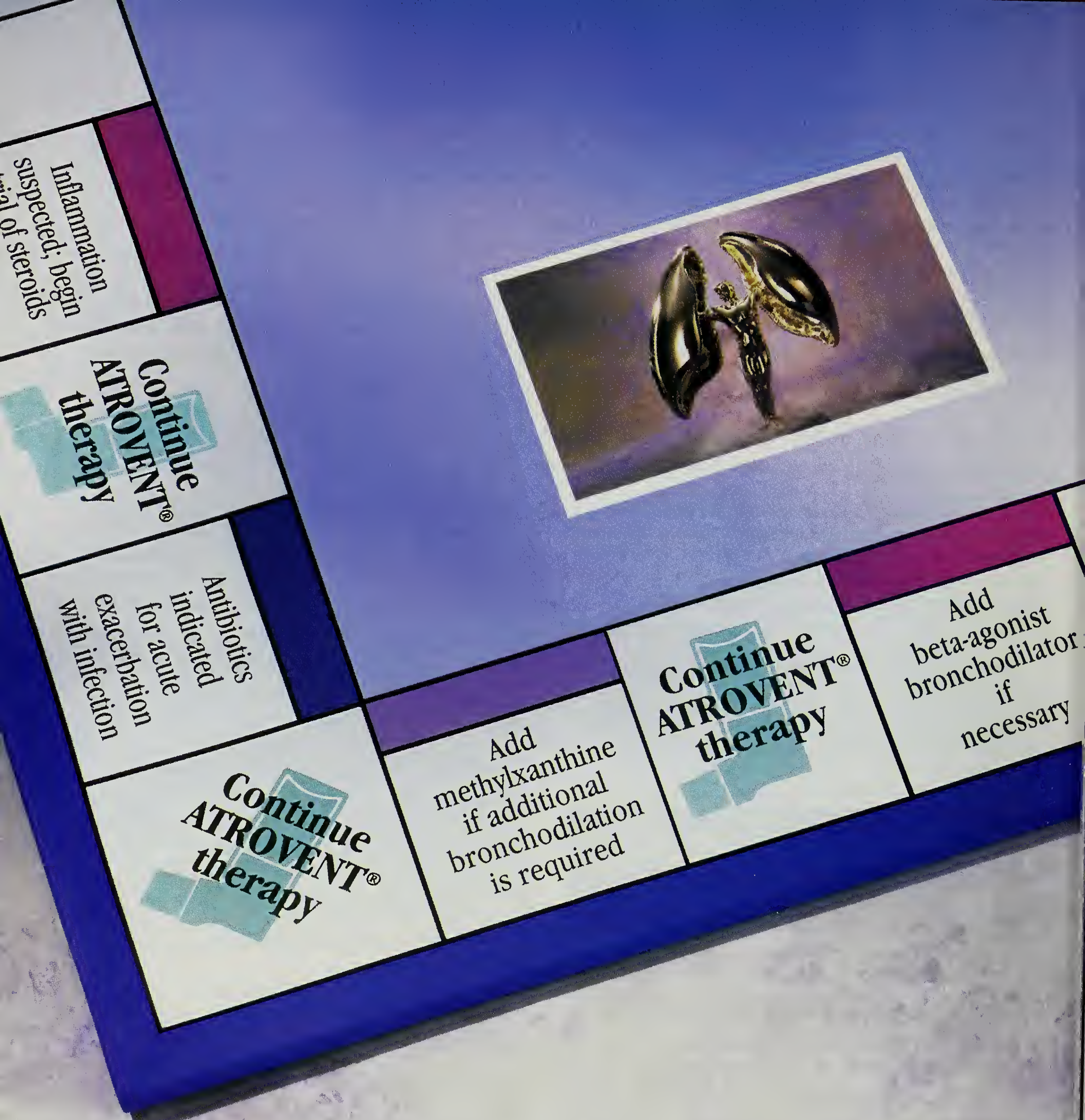
To request application packet, please contact: Kathleen Haley, Executive Director, Oregon Board of Medical Examiners, 1500 SW First—Suite 620, Portland, OR 97201-5826 (503) 229-5873.


Inflammation
suspected; begin
ial of steroids
Continue ATROVENT® therapy
Antibiotics indicated for acute exacerbation with infection
Continue ATROVENT® therapy
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ATROVENT is a bronchodilator for maintenance treatment of bronchospasm in COPD. It is not indicated in the initial treatment of acute episodes of bronchospasm where rapid response is required.

Algorithm adapted from Roger C. Bone, MD. A step-care approach to managing COPD. *The Journal of Respiratory Diseases*. August 1991, pp 727-740, and Kenneth R. Chapman, MD. Therapeutic algorithm for chronic obstructive pulmonary disease. *American Journal of Medicine*. October 1991 (supplement 4A), pp 17S-23S.

The most common side effects in clinical trials were cough (5.9%) and nervousness (3.1%). ATROVENT should be used with caution in patients with narrow-angle glaucoma, prostatic hypertrophy or bladder-neck obstruction.

A Mammogram Coupon Program:
A Collaborative Effort to Provide Mammograms to Uninsured Women in Connecticut

CHRISTINE B. PARKER, M.P.H., JOAN SIMPSON, M.S.P.H.,
AND LISA STRELEZ McCOOEY, M.P.H.

ABSTRACT—A collaborative effort to provide free screening mammograms to uninsured women throughout Connecticut using monies raised by the Connecticut RACE FOR THE CURE was launched during National Breast Cancer Awareness Month, October 1994. The program involved 55 American College of Radiology (ACR) accredited mammography facilities and 48 social service agencies. Eligibility criteria stipulated that participants be age 40 or older, be asymptomatic, have no health insurance, and have not had a mammogram within the last year. A total of 531 women received screening mammograms with four breast cancers diagnosed. The typical woman who was screened was white, between age 40 and 59, had a low income, a high school education or less, and no health insurance. Most had had a mammogram at some point in her life, but had not had one in the last two years.

It was found that recruiting eligible women was more difficult than initially estimated. Many of the participating social service agencies served clients already on assistance, and, therefore, had mammogram coverage. Mass media, in particular television, proved to be a powerful recruiting tool which reached primarily "working poor" women. Future efforts should allow for a lengthier planning time to recruit hard-to-reach women and anticipate the need for case management to ensure follow-up of abnormal findings.

Introduction

IN May 1994, the first annual Susan G. Komen Foundation RACE FOR THE CURE was held in New Britain. Over 2,000 runners participated in raising over $150,000. The Susan G. Komen Breast Cancer Foundation RACE FOR THE CURE is a national organization with a network of volunteers and events throughout the United States. The foundation requires that a percentage of the monies raised be forwarded for national breast cancer research with the balance to remain in the state to address breast cancer needs.

The Connecticut Department of Public Health and Addiction Services' (DPHAS) Breast and Cervical Cancer Prevention Program was approached by the RACE organizers for recommendations regarding dissemination of the proceeds to communities statewide. Staff from the Breast and Cervical Cancer Prevention Program drafted a proposal for a mammography screening program utilizing personnel, resources, and networks developed at the state level which was accepted by the RACE organizers.

Methods

The mammography screening program was implemented during the month of October and continued through November. Since October is National Breast Cancer Awareness Month, the intent was to maximize publicity through promotions associated with the campaign. By continuing the program through the end of November, it allowed radiology facilities enough scheduling time for the mammograms while establishing an end point for the program.

It was estimated that approximately 800 screening mammograms would be completed at a reimbursement rate of $75.00 with limited funds remaining to assist

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CHRISTINE B. PARKER, M.P.H., JOAN SIMPSON, M.S.P.H., and LISA STRELEZ McCOOEY, M.P.H., Connecticut Department of Public Health and Addiction Services, Division of Chronic Diseases and Injury Prevention, Hartford. Funding for this program provided by: Susan G. Komen Breast Cancer Foundation, Connecticut RACE FOR THE CURE.

women who had abnormal screening results with diagnostic follow-up procedure costs. Eligibility requirements for participation in the program were established as follows: age 40 or over, no health insurance or in the alternate year of Medicare coverage, asymptomatic, and no mammogram within the last year. Eligible women were provided with a coupon for a free screening mammogram at a participating radiology facility.

One hundred twenty-one mammography facilities accredited by the American College of Radiology (ACR) were contacted. Of the 121, 54 agreed to participate in the screening program. Facilities were located geographically throughout the state. Critical factors to facilities' acceptances included assurances that the woman's physician be named for reporting purposes and that a means be established in the event follow-up care was needed. The facilities also stressed the importance of accepting only asymptomatic patients and performing only screening mammograms.

The conceptualization of the screening program involved recruiting women through referral agencies who would determine eligibility, complete a basic demographic data form and return it to DPHAS, assist with scheduling appointments, and provide the woman with a coupon along with a mammography report form. On the day of the appointment, the woman would bring the coupon and report form with her to the mammography facility. After performing the mammogram, the radiology facility would complete the mammography report form and return it to DPHAS. Staff at DPHAS checked forms for completeness and arranged for reimbursement.

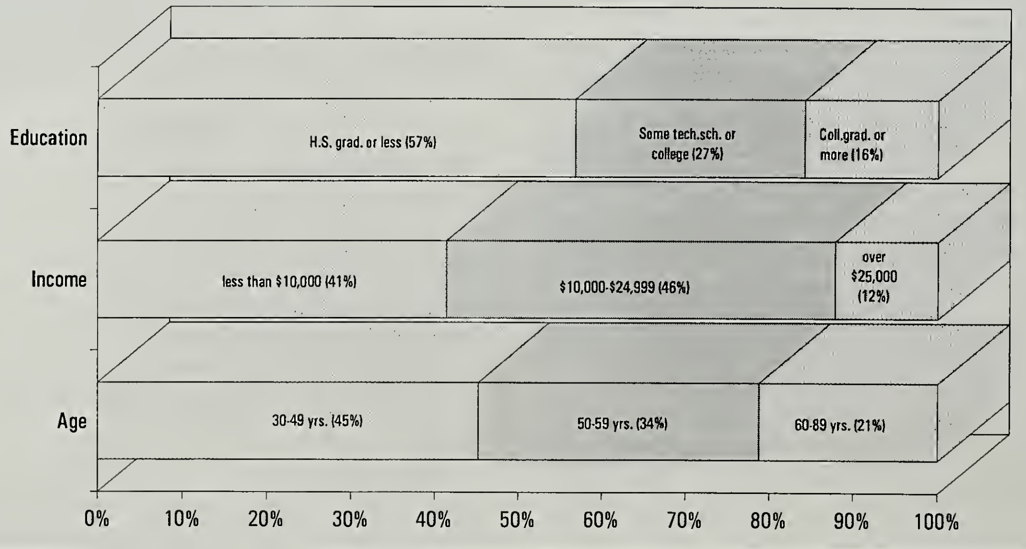
Social service agencies such as American Cancer Society units, Planned Parenthoods, YWCAs, and community health centers were solicited as referral agencies to assist with recruiting eligible women for screening. Of 55 agencies, 48 agreed to participate. They were located throughout Connecticut. In all, roughly 750 coupons were distributed to referral agencies.

In addition to these community agencies, the DPHAS contacted national organizations which have 800 telephone numbers and whose numbers were being publicized as part of National Mammography Day and National Breast Cancer Awareness Month activities. These organizations were provided with information regarding the program and a protocol with which to refer calls from Connecticut women to the staff at the Breast and Cervical Cancer Program at DPHAS.

In November, a telephone survey was conducted of referral agencies and it was learned that the agencies were having difficulty reaching eligible women. Reasons ranged from having clients who were too young to clients who were on assistance programs and, therefore, had mammogram coverage. Additional publicity strategies implemented to increase the number of women screened included recruiting local health directors to submit an announcement of the program in local newspapers; contacting the Area Agencies on Aging to distribute posters in selected senior center facilities; and, working with a statewide television station to produce program announcements.

The result of these combined efforts yielded hundreds of telephone calls. Each call was answered personally by DPHAS' Breast and Cervical Cancer Prevention staff, eligibility was determined, and each eligible woman was provided with the address and telephone number of the radiology facility nearest to her. Each woman was encouraged to call for an appointment immediately following the telephone conversation. The coupon and the mammogra-

Figure 1. Demographic Characteristics of Women Screened



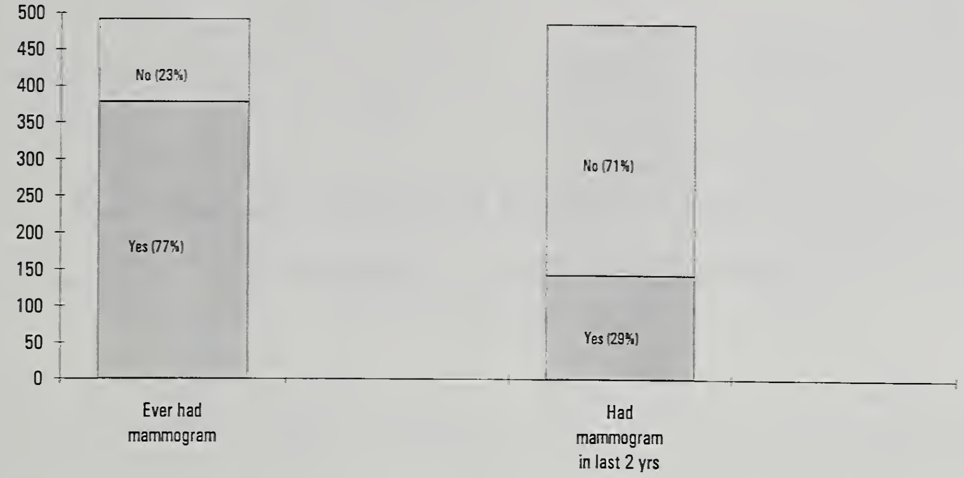


Figure 2. Mammogram History of Women Screened

phy report form were mailed to the woman at her home with instructions to bring these items to the facility at the time of her appointment.

Mammography report forms received at DPHAS were evaluated for diagnostic follow-up recommendations. A diagnostic follow-up and treatment report form developed by DPHAS was sent to the provider of the diagnostic care. When the completed follow-up and treatment report form was submitted with a bill for services rendered, reimbursement for the procedure(s) was made. These included, but were not limited to, diagnostic mammogram, additional views, magnification, and ultrasound. Diagnostic follow-up of patients involved extensive case management efforts on the part of DPHAS's staff. Coordination included contacting radiology facilities, patients' primary care physicians, surgeons, hospitals, radiologists, and anesthesiologists to inform these providers of the program's potential ability to financially assist patients with diagnostic costs.

Results

The program provided 531 women in Connecticut with screening mammograms. Complete data (ie, from demographic and mammography report forms) were received for 494 of 531 of the women, therefore, frequencies for demographic data were based on 494. As shown in Fig. 1, 45% of the women who had mammograms were between the ages 30 and 49. It is important to note that 44% of the women were aged 40-49. Women aged 50-59 accounted for 34% of the screening mammograms. More than 20% of the women were aged 60 and older.

An analysis of race showed that 85% of the women screened were white, while 13% were African-American. The remaining 2% consisted of other races. As a consequence of the public's confusion about the difference between race and Hispanic origin, the Hispanic origin question was completed for only 289 of the 494 women. Of these women, 14% were of Hispanic origin while 86% were not.

A frequency distribution of the annual household income demonstrated that 41% of the women had incomes below $10,000 (Fig. 1). Another 46% of the women had incomes between $10,000 and $24,999. Furthermore, nearly 90% of the women earned less than $25,000 per year. In many of these households, this income supported from two to eight individuals.

Fig. 1 also shows the education of the women served by the screening program. Women who were high school graduates or less totaled 57%. Close to 21% had had some technical school or some college, while 16% of the women were college graduates or more.

Questions about previous screening histories were asked in addition to demographic questions. More than three-fourths (77%) of the women had had a mammogram sometime in their lives (Fig. 2). However, only 29% of the women had had a mammogram in the last two years.

Data from the radiologist's assessments of the 531 mammograms showed that of the assessments, 69% had a negative mammogram and 20% had negative results with benign findings. Therefore, nearly 90% of the women screened required no follow-up (Table 1). Another 6% of the women had results that were probably benign with short interval follow-up suggested. The mammograms of 1% of the women were assessed as either suspicious, a biopsy should be considered, or highly suggestive of malignancy.

A total of 40 women sought further diagnostic care. Of these, 15 women required diagnostic mammograms, while four women had magnifications and two had spot com-

Table 1.—Radiologist's Assessment of Screening Mammogram

Radiologist's Assessment	*Number*	*Percent*
Negative mammography	364	69
Incomplete—need additional evaluation	21	4
Negative with benign findings	105	20
Probably benign—short interval follow-up suggested	34	6
Suspicious—biopsy	5	1
Highly suggestive of malignancy	2	0
Total	**531**	**100**

pressions performed. Furthermore, 20 of these women underwent ultrasound testing to assist in the diagnosis. One-fourth of the women had some other diagnostic procedure. In most cases, this involved consultation with a surgeon.

A surgical biopsy was performed on eleven of the women, seven of which proved to be benign. Of the eleven biopsies performed, 36% or four women had a breast cancer diagnosis. Their ages were 46, 50, 51, and 83. In all four cases, the malignancy was located in the right breast. For one woman, the final diagnosis was cancer in situ, while for the other three it was invasive cancer. The stage of diagnosis revealed that one woman had Stage 0 and two women had Stage II. The stage of diagnosis was unknown for the fourth woman. All four women were recommended for treatment.

Discussion

The screening mammogram program provided 531 mammograms to women who otherwise might not have been able to have one. The program also assisted 40 women with costs associated with diagnostic follow-up, including portions of the surgical biopsy costs.

Many of the women screened were members of the "working poor." That is, women who were employed in unskilled or low-skilled occupations such as waitresses, beauticians, or sales clerks where health insurance is not a fringe benefit. By having some source of income, they often did not meet income guidelines for assistance programs, and thus, had no health insurance. Minimal wages may have prohibited them from purchasing health insurance and from paying for expensive medical procedures, particularly those of a preventive nature.

The importance of case management to ensure that women with abnormal or suspicious test results were followed up was illustrated by the program. If further diagnostic care was needed, efforts were made to follow the woman to final diagnosis. This case-by-case process is an essential component of any mammography screening program.

This program emphasized the effectiveness of strong partnerships and shared responsibilities among partners as well as demonstrated the barriers that may be encountered when targeting this population. Future breast cancer screening initiatives in Connecticut will benefit through continued collaborative efforts and by applying the expertise gained through this experience.

Inaccurate Medical Student Introductions: Frequency and Motivation

MARK EDWARD BEATTY, M.D. AND JUDY LEWIS, M.PHIL.

ONE hundred forty-three third- and fourth-year medical students at the University of Connecticut School of Medicine were surveyed to investigate how often students were introduced, or introduced themselves, to patients as "Doctor." Based on a 44% response rates, this survey revealed that all respondents had been introduced as "Doctor" by hospital staff on one or more occasions, and 58% did not refute the introduction. Moreover, 5% almost always introduced themselves as "Doctor." The current survey also explored the motivation for using misleading introductions and student perceptions of patient beliefs. A literature review revealed patients have a more positive view of students than students typically attribute to themselves.[1,2,3]

Introduction

Patient autonomy requires informed consent. Cohen et al have outlined what this means when medical students are involved in health-care delivery: (1) the patient must be told explicitly that a medical student will be involved in his or her care; (2) the patient must understand the level of the student's knowledge, skill, and experience; and (3) the patient must voluntarily consent to the student's involvement.[4] The Joint Commission on Accreditation of Healthcare Organizations has mandated that patients have the right to refuse student involvement.[5] Patients can not exercise this right if they are not accurately informed of the student's educational status. Previous studies have shown that some medical students introduce themselves as physicians to patients.[6,7]

In a 1991 survey of first- and second-year Brown University medical students, 96% did not know if the university had a policy on student introductions.[6] In 1988 Cohen et al reported that only 57% of American medical schools had a policy requiring students to clarify their status, while only 37.5% of teaching hospitals actually informed patients that medical students might be involved in their care.[7] In fact, deans, department chairpersons, and hospital administrators do not adhere to the federal guidelines on this matter.[4,7] And, without clear policy students may assume that failing to inform is acceptable.[8]

Because of the uncertainty, Brown University medical students felt strongly that there was need for a policy.[6] Many of the students stated that misleading patients during introductions is unethical; however, the feeling was not unanimous.[6] Thirty-three percent of students stated that informed consent was not necessary for a student to perform certain procedures.[6] The following study was designed to define the current scope of inaccurate student introductions and to explore the rationale for such behavior.

Methods

A 31-question survey was mailed to the 143 third- and fourth-year medical students attending the University of Connecticut School of Medicine in Farmington. The survey was distributed early in the 1992-93 academic year. The response rate was 44% (n=63). The data were analyzed using the *Epi Info* version 5.01b. Individual χ^2 or Fisher two-tailed P values are reported in the text.

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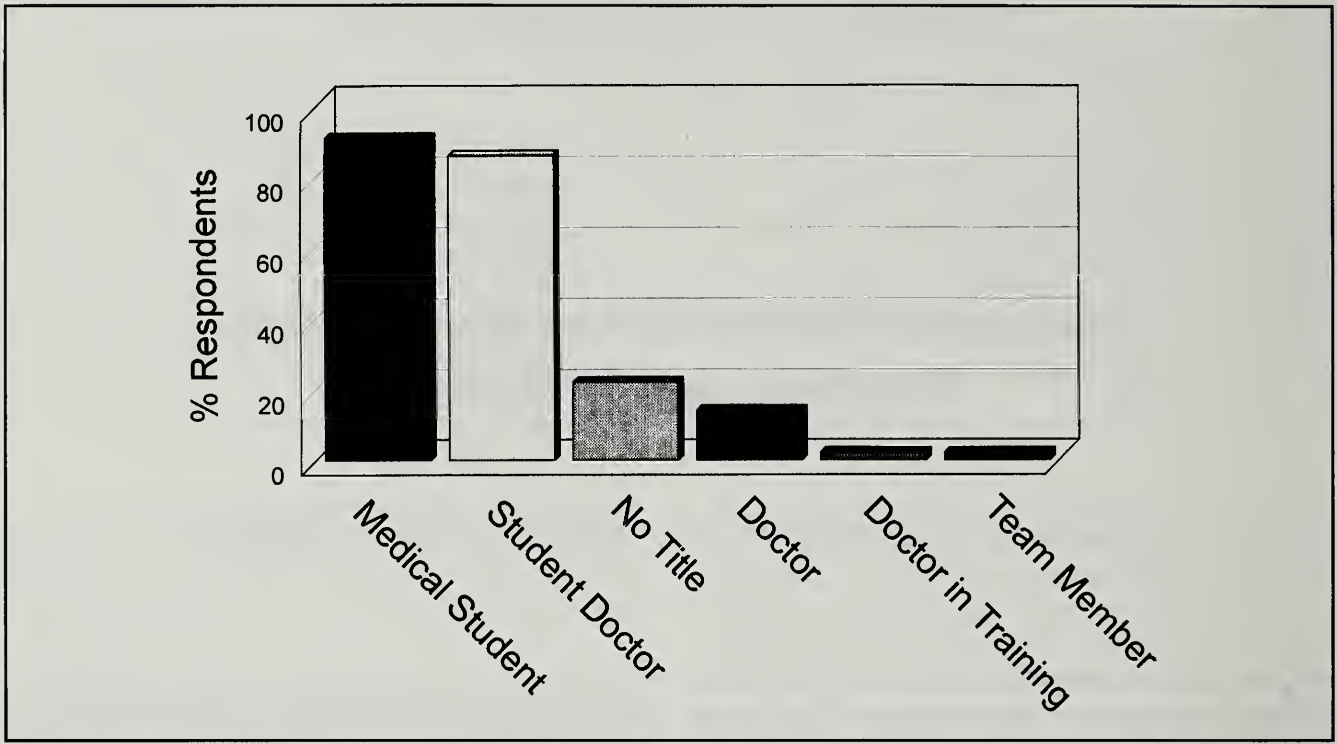


Figure 1.—Titles considered acceptable by medical students (n=63).

The mean age of respondents was 27±5 years with a range of 23 to 47 years. Fifty-three percent of respondents were male; 46%, female; and 1% did not indicate gender. The distribution of gender for the two classes as a whole was 52% male and 48% female: This suggests the sample was representative. Sixty percent of respondents were third-year students; 40% were fourth-year students. Forty-eight percent of respondents anticipated a career in primary care—medicine, family practice, or pediatrics; 21% were undecided; 20% identified a surgical specialty or obstetrics and gynecology; and the remaining 12% chose radiology, pathology, psychiatry, or anesthesiology. This is similar to the 1993 National Residency Matching Program data which showed that 51% of fourth-year medical students in the United States had chosen a primary care specialty and 27% had chosen a surgical specialty.

Results

Respondents were asked to choose titles for students for the introduction of medical students to patients (see Fig. 1). Every respondent indicated "Medical Student" and/or "Student Doctor" were acceptable. These are considered accurate because they emphasize student status.[7] Alternatively, 33% chose "Doctor" or no title. These are considered misleading titles because they fail to emphasize the educational level of the student.[7]

There was no statistical difference between the third- and fourth-year students in the choice of acceptable student titles, despite the fact that, at the time of mailing, fourth-year students had attended a seminar devoted to ethics in medicine that included student introductions.

The frequency with which hospital staff introduce students as physicians was investigated (Fig. 2). Hospital staff included interns, residents, fellows, and attending physicians. Nineteen percent of respondents reported they were almost always introduced to patients as "Doctor"; 16% indicated this happened more frequently than not; 44%, sometimes; 21%, seldom; and 0%, never. When introduced as "Doctor," respondents were asked to describe how they reacted. There were 57 responses; 58% acquiesced in the introduction, although the majority of these felt uncomfortable; and 42% corrected it. Male respondents were less likely to correct an inaccurate introduction made by a hospital staff member (*P*=.0267). Respondents anticipating a surgical specialty were less likely to correct an inaccurate introduction(*P*=.0140), while respondents anticipating a primary-care specialty were more likely to correct an inaccurate introduction (*P*=.0251).

Respondents were asked how often they introduced themselves to patients as physicians (Fig. 3). Similar to the Cohen national survey of third-year medical students, 5% almost always introduced themselves as "Doctor."[7] Also similar to the 1988 Cohen survey,[7] male respondents were more likely to use "Doctor" to introduce themselves (*P*=.0054). In our survey a significant positive association existed between using "Doctor" and not correcting a staff member's introduction of the respondent as a "Doctor" (P=.0175) indicating consistent replies. Respondents anticipating entering a primary-care specialty were less likely to use "Doctor" during an introduction (P=.0312).

Respondents were asked why they would, or would not, use "Doctor" when introducing themselves. There were 51 responses: Eighty-two percent of respondents felt it was illegal or dishonest, and 4% believed it would lead patients to expect more than the student was capable of providing. The remaining 14% stated that using "Doctor" as a title was acceptable because: "Doctor" was easier for confused patients to understand; they were instructed to do so by a superior; support staff more readily respond to a physician's orders; and, informing the patient of the respondent's true status would undermine the patient's confidence in the student.

To determine if patient refusal of student involvement was a common experience, respondents were asked how frequently patients refused them: Twenty-two percent had never been refused; 64%, seldom; and the remaining 14% had sometimes been refused. Moreover, 68% agreed that being a "student reduced the likelihood of a patient allowing an individual to perform a procedure."

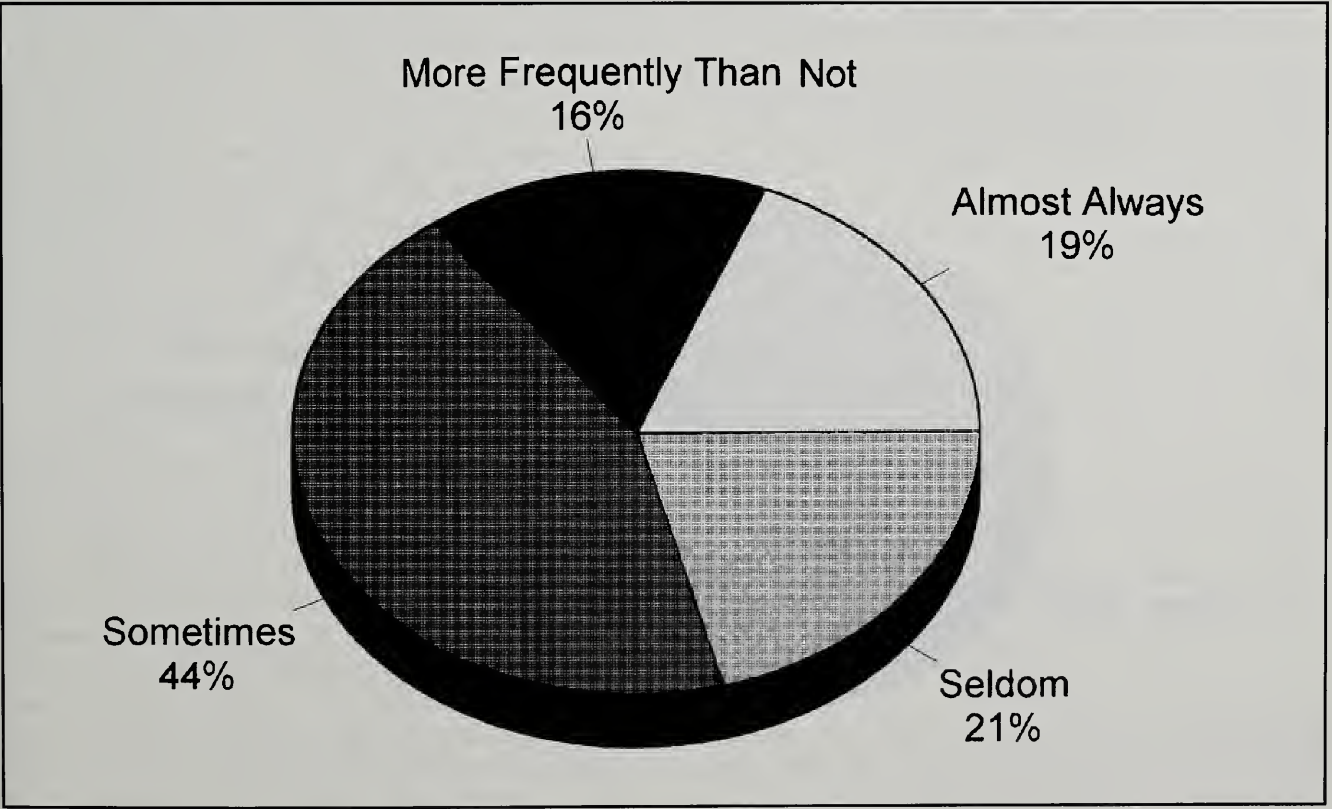
Respondents were asked why they believed they were refused. There were 53 responses; the most common were: patients believe student involvement results in "a reduced quality of care," "increased pain or complications," or "is an unwanted imposition on their privacy." Furthermore, 19% of respondents agreed with the statement that "patients generally feel they are educational experiments when under the care of medical students."

To assess the respondents' impression of patient knowledge, several additional true/false statements were provided. Fifteen percent of respondents agreed that "patients admitted to teaching hospitals expect to be treated by medical students." Eight percent agreed that patients were able to deduce that the respondent, in particular, was a student and not a physician. How the patients learned this was not pursued, but several respondents commented that their lack of an "air of confidence" or lack of proficiency played an important role.

Respondents were also asked if patients had any obligations to fulfill on admission to a teaching hospital; 55 responded: 69% stated that patients admitted to teaching hospitals were not obligated to accept treatment by medical students, 4% were not sure. On the other hand, 27% of respondents felt patients were obligated; because the patient chose the hospital, lacked insurance, or because the student's educational needs outweighed the patient's right to informed consent.

Students were provided with three cases and a list of 12 elements of a history, physical, and workup. They were then asked to indicate which elements the patients de-

Figure 2.—Frequency at which medical students are introduced as "Doctor" to patients by hospital staff (n=63).



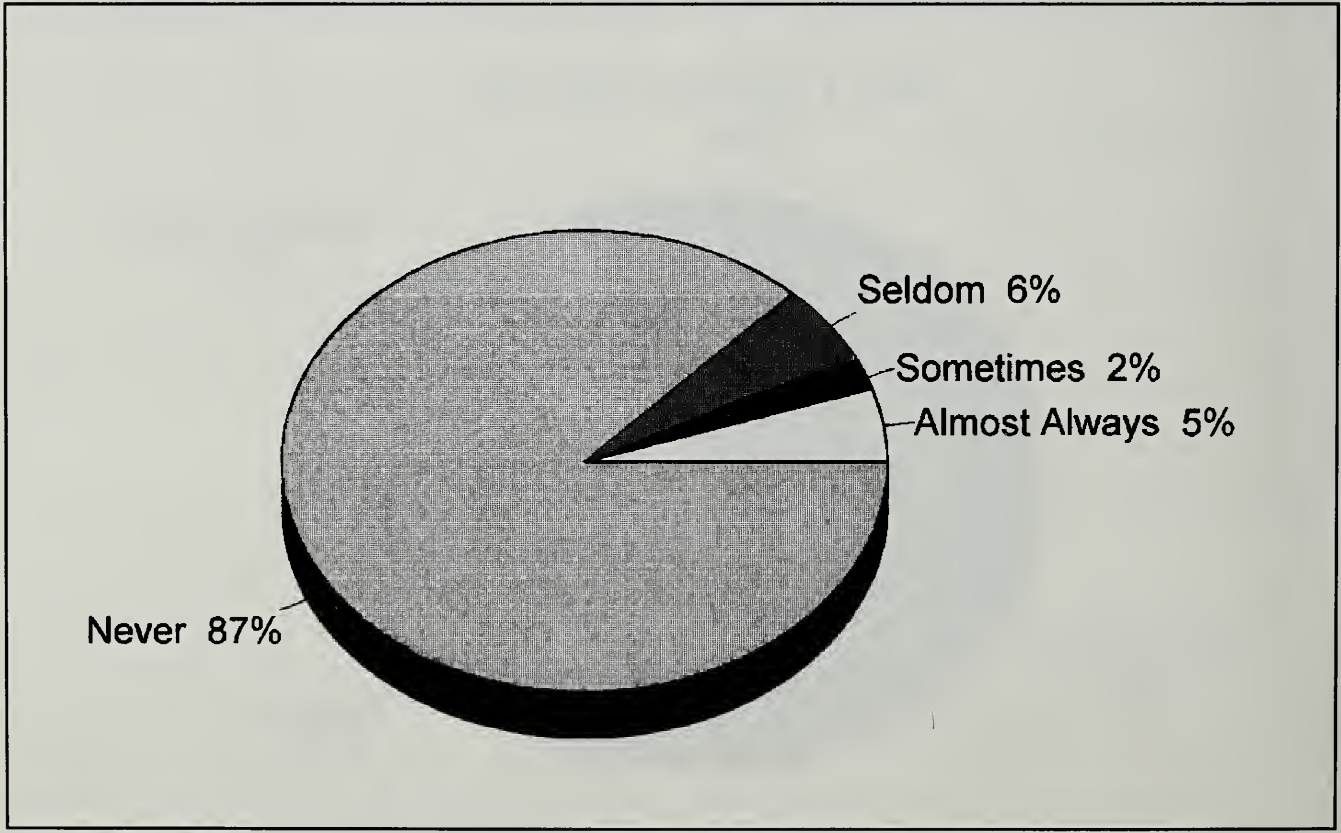
scribed would not allow a student to perform, and which elements, if any, the patient would not allow a physician to perform. The cases were as follows: (1) a 45-year-old individual who daily consumes a quart of vodka seeks admission to an alcohol treatment center; (2) a 35-year-old primigravida comes to an obstetrical clinic for her initial visit; and, (3) a 25-year-old male enters the emergency room with a deep scalp laceration that requires irrigation and suturing. The specific elements listed were: general medical questions, questions regarding alcohol use, family relationships, and sexual history; cardiac, pelvic or testicular, and rectal examinations; blood drawing, lumbar puncture, suturing a minor laceration, observing major surgery, and being first assistant in major surgery (in case 2, suturing an episiotomy, observing a delivery, and performing a delivery were substituted for suturing a minor laceration, observing major surgery, and first assisting in major surgery, respectively). In general, respondents did not believe any questions in the history would be refused. On the other hand, (1) the more invasive the examination or procedure, the more likely respondents were to believe that the patients would refuse both students and doctors; and, (2) given the same examination or procedure, students believed they were more likely to be refused than doctors. Respondents believed genital examinations would be the most frequently refused.

Discussion

Williams and Fost reported that 72% of patients stated they would be upset if they later learned that they had been the unsuspecting subject of a novice's first tap.[8] Williams and Fost also suggested that such deception of patients could negatively affect the doctor-patient relationship.[8] Patients may lose trust in their physicians and become unwilling to reveal important details of health issues,[8] and may become less likely to comply with prescribed treatment plans.[8,9] Ultimately, the patient's health might suffer. But, in addition to the risk to patients, Bok suggests that harm is also incurred by the individual who misleads patients, through personal discomfort, loss of integrity, a greater likelihood to lie again to support the first lie, and a diminished resistance to lie for causes he or she may wish to further in the future.[10]

Informed consent was established to protect against involuntary bodily invasion with resulting undisclosed risks.[8] Because novice participation increases the risk of complications,[11,12] patients must be informed of a student's status prior to her involvement in patient care. But, since 78% of respondents have, at some time, been refused involvement in patient care, and 68% believed that being a student reduced their likelihood of being permitted to perform a procedure, refusal becomes a real concern for

Figure 3.—Frequency at which medical students introduce themselves to patients as "Doctor" (n=63).



medical students. Indeed, in specific instances, respondents indicated that there were examinations and procedures that a patient would refuse to allow a student to do and not a physician. Thus, the aim of misleading introductions might well be to avoid patient refusal of student involvement.

Such responses to the current survey as "[being a student] undermines the patient's confidence" or "[student involvement] reduces the quality of care," suggest that medical students may harbor feelings of inferiority. This despite the fact that most patients have positive views of medical students,[1,9] readily accept student involvement,[1,9,13,14] and would still be willing to allow a student to perform first-time procedures.[8] Such feelings suggest that the medical education system exerts pressure on medical students to conform and succeed.

Shuval reports that the professional socialization in medical school is not a smooth process.[15] In interviews with medical students, Rosenberg was impressed by the feelings of inferiority fostered during educational programs.[16] Because learning in the third and fourth year of medical school is heavily dependent on student involvement in patient care, a patient's refusal of student involvement may be a troubling event for a student. The refusal may increase feelings of inadequacy already induced by the medical education process, or simply decrease the opportunity to improve skills, and heighten fear of failure as a student. There is a strong motivation to gain access to patients.

Firth confirms that medical students experience more stress than individuals of the same age who are not employed in health care.[17] The greatest source of stress cited by students was interaction with attending physicians.[16] If students insisted on accurate introductions and full disclosure of their status during busy rounds they might displease hospital staff who do not agree with the need for informed consent in this instance. Thus, students may introduce themselves as "Doctor," or acquiesce to such introductions, to avoid disapproval or simply to conform with their new colleagues or superiors.

Because role models are important in the professional socialization of medical students,[15] these models may influence students' views on patients' rights. When attending physicians or residents introduce students as "Doctor," students are shown by example that failing to inform is acceptable. Indeed, every respondent had been introduced as "Doctor" by hospital staff at least once. But, on a more subtle level, certain types of physician-patient interaction may also reinforce the acceptability of misleading patients. In the paternalistic model of medical decision making, physicians require little, if any, patient input in order to act on behalf of their patients. These physicians know what is best for their patients without discussing the options with them.[18] Such decision making on the wards may convey the message to students that the patient's opinion is unimportant, and, therefore, any reasonable agenda a health-care provider has, can be as important as fulfilling a patient's needs. For example, failing to inform is acceptable because students need to learn. But, this conclusion is another version of the paternalistic model placing student education over the patient's best interest; it is, therefore, untenable.[8]

The data suggest that there are at least three behavior patterns with regard to inaccurate introductions: respondents who do not introduce themselves as "Doctor" and refute such inaccurate introductions made by hospital staff; respondents who do not introduce themselves as "Doctor" and feel uncomfortable when introduced as "Doctor" by hospital staff, but who acquiesce in these introductions; and, respondents who both use "Doctor" themselves and agree with such an introduction when made by hospital staff.

The first group of respondents were mostly individuals anticipating a nonprocedure-oriented specialty in primary care. As a result, the pressure to practice procedures may have been reduced.

The second group of respondents seems to be aware of the ethical dilemma as evidenced by their discomfort with having to acquiesce. But, the pressure to conform with colleagues or superiors and/or fear of the repercussions of insisting on full disclosure, seems to be too great for this group to resist. They retreat from their own ethical opinions and temporarily assume those of the hierarchy. The temporary nature of this shift is important; since they are passively acquiescing, once removed from role models that mislead patients, their unethical behavior would cease.

Finally, the third group of respondents believes that failing to inform is acceptable. This group is largely male and primarily considering procedure-oriented careers in surgery or obstetrics and gynecology. Their belief allows them to rationalize practicing procedures as students while they avoid the disapproval of hospital staff who also believe that failing to inform is acceptable. These respondents may adopt this view after observing role models misleading patients or by accepting the paternalistic model of medical decision making to suit their educational needs. This group's behavior would be the most difficult to modify, because of their active choice in this instance to mislead. In order to intervene in their behavior, hospital staff would not only have to act as models for ethical behavior but also actively demonstrate opposition to the use of misleading introductions.

Conclusion

This survey of third- and fourth-year medical students at the University of Connecticut shows that it is not uncommon for patients to be misled regarding a medical student's educational status. The motivation for this behavior by medical students may be fear of failure, pressure to please superiors, or the belief that health-care providers do not need patient approval because they know what is best for patients. The assumption underlying such behavior is that patients do not want students involved in their care, but the literature does not support this view. Most patients are indifferent to students and a large number prefer students because of the unique qualities they bring to the team. Even with an invasive first-time procedure, greater than 50% of patients would still allow students to perform.[8] Honest disclosure of a student's status at all times may slightly decrease opportunities to perform procedures, but it will maintain a positive doctor-patient relationship and it will reinforce the message to students that physicians must always act on sound ethical principles and only in the patient's best interest.

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Pathology

Yutaka Kikkawa, MD, Section Editor

The Council on Scientific Affairs of the California Medical Association presents the following epitomes of progress in pathology. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and clinical importance. The items are presented in simple epitome, and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, researchers, and scholars to stay abreast of progress in medicine, whether in their own field of special interest or another.

The epitomes included here were selected by the Advisory Panel to the Section on Pathology of the California Medical Association, and the summaries were prepared under the direction of Yutaka Kikkawa, M.D., and the panel.

Cervical Pathology—The Bethesda System and the 'Atypical Squamous Cells of Undetermined Significance' Controversy

THE Bethesda System for reporting cervicovaginal cytologic examinations was first introduced by the National Cancer Institute in 1988, and criteria for using uniform terms and consistently reporting these examinations were published by the Bethesda work group in 1994. Among the many reasons cited for creating this system was the recognition that Papanicolaou's original classification system did not reflect the current understanding of cervical carcinoma. Some laboratories continued to use the Papanicolaou classification system, although there was no consistency in how it was applied, and other laboratories used nomenclature borrowed from surgical pathology or created their own terminology. The Bethesda System, therefore, was designed to provide a uniform diagnostic terminology for reporting cervicovaginal cytologic examinations.

Among the most controversial aspects of the Bethesda System has been the new diagnostic category, "atypical squamous cells of undetermined significance" (ASCUS). Before the publication of system criteria, cytopathologists and technologists were uncertain which cells to place in the ASCUS category, and clinicians were unsure of the importance of this diagnosis and how to treat patients given the diagnosis. It has been recognized that the failure to use strict cytologic criteria to define an abnormal smear can result in enormous variation in the prevalence rate of abnormal Pap smears. Applying strict criteria for diagnosing ASCUS has been found to increase the cytologic detection of clinically important lesions from 25% to 61.3%.

The Bethesda work group recognizes that individual pathologists may use the ASCUS diagnosis differently. The newly published criteria emphasize, however, that ASCUS is not synonymous with previously used terms such as "atypia," "benign atypia," "inflammatory atypia," or "reactive atypia." These other terms referred to lesions currently classified by the system as "reactive cellular changes." An ASCUS diagnosis is meant to convey the differential diagnostic problem between a benign reaction to a stimulus versus a low-grade squamous intraepithelial lesion. It appears that some consistency in the application of ASCUS is being achieved. The College of American Pathologists' Interlaboratory Comparison Program in Cervicovaginal Cytology (PAP) survey indicates that by December 1993, 82.5% of the 903 participating laboratories limited the use of "atypia" terms to abnormalities of undetermined importance.

Acceptable rates for ASCUS diagnoses are currently being defined. Clinicians are suspicious of overdiagnosis that may obligate them to provide expensive and time-consuming follow-up evaluations. The Bethesda work group has suggested that the rate of ASCUS diagnoses should not exceed two to three times the rate of squamous intraepithelial lesion diagnoses. The College of American

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Pathologists' PAP program supports the target value of the ratio of the diagnosis of ASCUS to that of squamous intraepithelial lesion of 2:1 to 3:1 and has found that this ratio is more constant between laboratories than the ASCUS rates because patient groups may vary. Therefore, it has been suggested that the ratio of the ASCUS diagnosis to that of squamous intraepithelial lesion can be used for interlaboratory comparisons and as a monitor over time within laboratories or between individual cytopathologists and technologists. The Quality Assurance Committee of the California Breast and Cervical Cancer Control Program similarly has investigated this ratio to monitor participating laboratories. Their preliminary results indicate that this is a useful means of interlaboratory comparison and that the ASCUS diagnosis is used somewhat consistently.

The College of American Pathologists' 1993 PAP survey indicates that 62% of laboratories will qualify an ASCUS diagnosis as favoring a reactive or premalignant process, and 53% will give a written follow-up recommendation in ASCUS reports in most of these cases.

Interim guidelines for the follow-up of ASCUS Pap smears have recently been published. Future trends in the use of the system should include increased consistency in using the ASCUS diagnosis and a better understanding of the diagnostic problem this term is trying to communicate, so that appropriate follow-up can be instituted.

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Serum Prostate-Specific Antigen Assay—An Update

PROSTATE-SPECIFIC antigen (PSA) is synthesized in the epithelial cells of the prostate gland and is perhaps the best tumor marker discovered thus far. The tissue specificity of PSA makes it the most useful marker available for the diagnosis and management of prostate cancer. Lack of cancer specificity is its only drawback. Benign conditions, such as benign prostatic hyperplasia, prostatitis, and infarction, can also be associated with elevated serum PSA levels. Because prostate cancer is frequently associated with old age in men and is a major cause of death for men, a test capable of detecting prostate cancer before the lesion extends outside the confines of the prostate gland is in demand.

Clinical Utility

Because of its tissue specificity, the PSA assay is particularly useful for monitoring the success of surgical prostatectomy. Complete removal of the prostate should result in an undetectable PSA level; any measurable PSA after radical prostatectomy would indicate residual prostatic tissue or metastasis. In those cases, increasing PSA concentrations strongly indicate a recurrent disease. If, however, the detectable serum PSA level after radical prostatectomy is caused by incomplete resection of the gland and not persistent disease, the level should remain unchanged on extended follow-up. Because of the specificity of PSA, the ability of the assay to detect residual prostatic tissue or the recurrence of prostate cancer at an early stage cannot be replicated by other tumor markers. It should be noted that the half-life of serum PSA is about three to four days; therefore, it will take 30 days for a serum PSA at 50 μg per liter (50 ng per ml) to drop to an undetectable range after surgical therapy. Measuring the PSA level within a month after curative radical prostatectomy is not recommended. Also, serum PSA should not be measured during the course of irradiation treatment, as a transient and modest increase of PSA may occur that could be misinterpreted as disease progression.

The tissue specificity of PSA also makes the test an excellent tool for detecting recurrence after radical prostatectomy. There has been a great demand for the development of an ultrasensitive PSA test that would allow recurrence and metastasis to be detected early, thus providing a better opportunity for successful treatment. Many commercial PSA tests now available are capable of detecting serum PSA levels below 0.1 μg per liter.

In general, no tumor markers are recommended for screening. The use of serum PSA levels in combination with either digital rectal examination (DRE) or transrectal ultrasonography of the prostate as a screening tool for detecting clinically important prostate cancer has been recommended by some. Screening may not only prevent the death of about 30,000 to 40,000 active men from prostate cancer each year, but also permit treatment of organ-confined, potentially curable prostate cancer discovered in men with a life expectancy of more than 10 years.

Improvements on Assay Use

The PSA test is tissue- but not cancer-specific. There is substantial overlap in serum PSA levels between men with benign prostatic hyperplasia and those with prostate cancer, especially in the range of 4 to 10 μg per liter. Therefore, there is also a need to improve the current PSA test to differentiate between the two disorders. Two interesting and noteworthy new approaches have been developed for improving the specificity and sensitivity of PSA testing: the measurement of PSA density and the determination of the rate of increase in PSA concentration.

One approach has been to divide the serum PSA concentration by the volume of the prostate gland (determined by transrectal ultrasonogram); the result is the PSA density. A mildly elevated serum PSA level associated with a small prostate gland may be indicative of cancer, whereas the same value in a patient with a large gland may be indicative only of benign hyperplasia. It was recommended that if the findings of the DRE are normal and the serum PSA level is between 4 and 10 μg per liter (by Hybritech assay), the patient should undergo transrectal ultrasonography to determine the volume of the prostate gland. The mean PSA density has been established as 0.285 for men with positive biopsy results and 0.199 for men with negative biopsy results. The merit of PSA density is to distinguish benign prostatic hyperplasia from prostate cancer for men who have serum PSA levels within the intermediate range (4 to 10 μg per liter) who have had normal findings on a DRE, but it may not detect all organ-confined prostate cancers.

Another approach to improve the specificity of the serum PSA test is to calculate the rate of change of serum PSA levels. This rate appears to be more useful than the actual serum PSA level for detecting and staging prostate cancer. For example, for serum PSA values well within the reference range (<4 μg per liter), a change from 1.8 to 2.9 μg per liter in a year's time could signal the presence of prostate cancer. If the PSA test selected is reliable over that period of time, this new approach allows for the early detection of cancers at a more curable stage than would have been possible with conventional criteria. It is now recommended that PSA velocity should be determined from three consecutive measurements within a year. A PSA velocity test showing a consistent increase of 0.75 μg per liter per year or greater, based on three consecutive determinations, is suggestive of cancer and warrants further evaluation. Both new approaches point out that PSA concentrations can be in the normal range even in the presence of cancer. Consequently, an accurate and precise determination of PSA levels within the normal concentration range will be required to take advantage of these two new methods.

One area that has not received enough attention is the use of age-adjusted reference values, especially the normal reference range for people at an older age. An age-specific reference range for serum PSA would possibly detect organ-confined prostate cancers earlier in younger men (men with a life expectancy longer than 10 years) at a time when the tumors are possibly more susceptible to cure. Based on the new reference ranges, fewer cancers in older men—who might have clinically insignificant tumors or have a less than 10 years' life expectancy and not benefit from surgical treatment—will be detected. In the past, 4 μg per liter was the upper normal cut off for men at all ages. The recommended age-specific serum PSA reference ranges are 0.0 to 2.5 μg per liter for men 40 to 49 years, 0.0 to 3.5 μg per liter for men 50 to 59 years, 0.0 to 4.5 μg per liter for men 60 to 69 years, and 0.0 to 6.5 μg per liter for men 70 to 79 years. Studies have indicated that the new age-specific serum PSA reference ranges appear to make PSA a more sensitive tumor marker for men younger than 60 years and a more specific tumor marker for men older than 60 years.

Prostate-Specific Antigen Composition in Serum

Prostate-specific antigen has recently been found to be a serine protease capable of complexing with various protease inhibitors. Consequently, PSA is not free in the blood circulation, but exists largely as PSA complexes with protease inhibitors. The major form of PSA complexes found in the serum is PSA–α_1-antichymotrypsin. The ratio between PSA–α_1-antichymotrypsin and free PSA in the serum is not constant; the ratio increases with increasing concentrations of total PSA. Most important is the finding that the percentage of PSA–α_1-antichymotrypsin complex of the total serum PSA is higher in patients with prostatic cancer than in those with benign prostatic hyperplasia. Therefore, the PSA–α_1-antichymotrypsin value has a higher sensitivity for cancer than the assay for total PSA. In other words, the free serum levels of PSA are substantially lower in patients with untreated prostate cancer than in those with benign hyperplasia; the free serum PSA concentration does not correlate with the total serum PSA or PSA–α_1-antichymotrypsin.

Unfortunately, all current PSA kits were designed to measure free PSA in the serum. Also, PSA values produced by different commercial kits are not always compatible. There are two major reasons for these discrepancies: antibodies used in various commercial PSA kits do not have the same specificities for both free PSA and PSA-α_1-antichymotrypsin complex in the serum, and the calibrators used in various kits not only are not identical to each other, but also do not match the PSA composition found in patients' serum. It was suggested from many studies that the lack of a uniform calibrator among various commercial kits largely accounts for the different PSA values produced by different kits on the same specimens.

New-Generation Assay

A logical improvement for the current PSA kits is to change the focus from the measurement of total PSA to that of PSA–α_1-antichymotrypsin complex, because there is an excellent correlation between serum concentrations of PSA–α_1-antichymotrypsin and total PSA in random and in serial specimens. Therefore, using an assay that specifically measures the PSA–α_1-antichymotrypsin complex in the serum not only simplifies the preparation of a calibrator, but eliminates the difficulty of antibody selection. The new-generation assay, which will be available soon, will also improve the test's specificity for prostate cancer.

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Specimen Quality and Accuracy of Fine-Needle Aspiration Biopsies

OVER the past 20 years, fine-needle aspiration biopsy (FNAB) has become an increasingly popular tool in the United States for diagnosing palpable and—with the adjunctive use of computed tomography (CT) or ultrasonography—deep-seated lesions arising in many body sites.

The accuracy of fine-needle aspiration as an effective diagnostic tool has varied greatly in recent reports: the sensitivity of FNAB to detect malignant neoplasms has ranged from 65% to 98% and the specificity (the ability to rule out malignant neoplasms unequivocally) from 34% to 100%. Looking at these results, the questions are why there is such a vast discrepancy and whether the test has use. In well-trained, experienced hands, however, FNAB is an accurate, cost-effective, and well-tolerated diagnostic procedure.

The principle of FNAB is simple, but its appearance is deceiving, leading to many practitioners doing FNABs without proper training or enough practice to maintain effective skills. Three components are necessary to obtain an accurate diagnosis: adequate specimen sampling, proper specimen preparation, and accurate microscopic interpretation. It is generally well recognized that special skill is required to interpret these specimens, but the importance of specimen quality is less well known, especially among clinicians. In analyzing the literature, it is clear that whereas mistakes at the microscope are the culprits in some inaccurate diagnoses, suboptimal lesional sampling and preparation are responsible for the majority.

In recent years, the increased interest in FNAB among pathologists has led to a growing number of residency training programs that include training in cytologic examination of fine-needle aspirations. A growing number of postgraduate education programs are being offered, and several institutions are offering fellowships in cytopathology. All of this has increased the level of experience in the community.

A good way to institute proper FNAB "basic training" is to teach the basic sampling and smearing techniques on bench material, such as animal liver or excised tumor tissue. Two supervised sessions, with time for practice in between, should prepare trainees for doing supervised FNABs in clinical situations. At least 100 to 200 cases within a six-month period are necessary to achieve an acceptable level of proficiency with the procedure, enabling a practitioner to produce diagnostic material in more than 95% of cases. All cases should be reviewed microscopically by the operator, and at least 25% of the procedures should be supervised, especially difficult cases. To maintain this level of skill, the operator should then do at least 20 biopsies per month.

In this manner, adequate tissue sampling techniques can be used, rendering FNAB a highly accurate, cost-effective method of diagnosis. When integrated into the "triple diagnosis for breast disease," for example, FNAB findings are considered along with mammographic findings and the clinical impression. If the FNAB reveals significant atypia and the clinical impression or mammogram indicates possible cancer, the patient is referred for open biopsy; all other patients are observed clinically. This method reduces morbidity, enhances turnaround time, and the per-case savings is about $700 or, for all breast cancer patients in the United States, a savings of close to $400 million, with a false-negative rate of about 1%.

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Molecular Pathology and Cancer Genetic Screening

WITH the recent, highly publicized discovery of the gene *BRCA1* and its relationship to the familial susceptibility to breast and ovarian cancer, the field of diagnostic molecular pathology has moved into the public consciousness. Along with other important discoveries, such as the genes related to hereditary polyposis and nonpolyposis colon cancer, gene mutations in multiple endocrine neoplasia type II (MEN II), and the linkage of a tumor-suppressor gene (*p53*) to many cancers, molecular oncology is emerging as a vital area in the diagnosis and clinical treatment of neoplasia. These discoveries have brought excitement, but also, with closer scrutiny, trepidation.

Cancer, with its specific chromosomal and nucleotide aberrations, is now being viewed as a true genetic disease. The simplistic hope that a single mutation causes a defined disease has, however, been replaced by the realization that inherited diseases carry mutations unique to themselves. In diseases such as familial breast cancer, familial colon cancer, and MEN II, there are a myriad of mutations. In only a few circumstances does a predominant mutation evolve that lends itself readily to standard molecular diagnostic testing.

Multiple endocrine neoplasia type IIA (MEN IIA), an autosomal dominant and nearly fully penetrant hereditary cancer syndrome, leads to the development of medullary thyroid cancer, pheochromocytoma, and parathyroid hyperplasia. The gene causing MEN IIA, the *RET* proto-oncogene on chromosome 10, functions as a receptor tyrosine kinase. Mutations in the *RET* proto-oncogene are all point mutations; 93% occur in two hot-spot regions in the gene. By using the polymerase chain reaction (PCR), an efficient and inexpensive tool, defined regions of the *RET* proto-oncogene containing the hot-spot regions can be amplified. Mutations change the DNA sequence and create or abolish restriction endonuclease cleavage sites. If restriction endonucleases are judiciously chosen, the PCR product can be digested and the fragments can be size-fractionated. These digest patterns can distinguish affected persons. In fact, each specific mutation can be identified with this technology. Laboratories often begin screening for possible MEN IIA mutations by examining the two hot spots; through these screens, 93% of all disease carriers can be identified. If this search yields a normal pattern, a more stringent analysis is begun by using the same technology at less frequently mutated regions of the gene. As many as 95% of all disease carriers can be detected by this approach. Once a mutation is identified in a family, other members of the kindred can then be screened with 100% sensitivity. With early diagnosis, affected persons can be treated aggressively and identified unaffected persons can be spared annual invasive and expensive clinical screening.

The prospect of a molecular diagnostic test for familial breast cancer was thought to be imminent with the cloning of the *BRCA1* gene. Unfortunately, the evidence thus far indicates that the quest for a comprehensive yet economically feasible DNA test for at-risk persons is formidable. The first difficulty stems from the indication that mutations in *BRCAI,* most likely a tumor-repressor gene, are extremely heterogeneous, with most of those identified so far unique to each family. With no predominant mutation(s) to screen for, each of the 22 exons in the *BRCAI* gene must be sequenced and analyzed. This will be enormously expensive and time-consuming. Second, *BRCAI,* although dominantly inherited, is not fully penetrant. Each of the five affected families initially studied had at least one female member older than 80 years positive for a *BRCAI* mutation but with no detectable breast cancer. Thus, mutations in *BRCAI* do not indicate a 100% probability of breast cancer developing, and their presence may not necessitate prophylactic mastectomy. Third, familial breast cancer is estimated to account for only 10% of all cases of breast cancer. The *BRCAI* gene is predicted to occur in 45% of cases of familial breast cancer; a second gene, *BRCA2,* apparently occurs in a similar proportion. A normal, nonmutated *BRCAI* gene does not indicate freedom from disease; a woman may get breast cancer related to *BRCA2,* or some other gene, and she is still susceptible to sporadic breast cancer. For all these reasons, molecular diagnostic screening for breast cancer predisposition presents extraordinary technical challenges; the results obtained raise clinical and ethical dilemmas.

Molecular diagnostic testing is now in its infancy with regard to two colorectal cancer syndromes. The first, familial adenomatous polyposis, is an autosomal, dominantly inherited, colorectal cancer syndrome with the hallmark of multiple adenomatous polyps (>100) that progress into cancer. The gene, adenomatous polyposis coli *(APC),* has been mapped to chromosome 5q21. Most kindreds have unique mutations in the *APC* gene, but two mutations occur in about 30% of cases. Molecular screening at this time involves linkage studies by DNA polymorphisms and direct sequencing of the gene. The second colorectal cancer syndrome, hereditary nonpolyposis colorectal cancer, is an autosomal dominant disorder that accounts for 4% to 6% of all colorectal cancers. The primary responsible genes (mismatch repair genes) are located on chromosome 2 *(HMSH2)* and chromosome 3 *(HMLH1),* but there are apparently others as well. Currently, linkage studies are the only feasible approach in most families, although functional protein-based assays are being developed.

Each week the literature is peppered with reports about the *p53* tumor-repressor gene. It is responsible for programmed cell-death and cell-cycle arrest, and it has been linked to cancers of the bladder, breasts, lungs, colon, brain, and other tissues. Although germline *p53* mutations have been linked to a small number of familial cancers (such as the Li-Fraumeni syndrome), somatic mutations can be found in sporadic tumors where they may aid in disease prognosis. For example, it was shown recently that tumors lacking wild-type *p53* were resistant to anticancer agents. Currently both DNA-based and immunohistochemical techniques can be used to detect mutated *p53.*

Diagnostic molecular oncology is evolving at a rapid pace, driven by the explosion of knowledge about the molecular biology of cancer and the frenzied cloning of disease genes under the impetus of the human genome project. But as new DNA tests emerge, diagnostic and ethical guidelines need to be developed and adhered to, despite the economic incentives and public appetite for this rapidly expanding field of pathology.

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Predisposition to Thrombosis by a Factor V Mutation Causing Hereditary Resistance to Activated Protein C

THROMBOEMBOLIC diseases resulting from the in appropriate activation of the blood coagulation cascade represent a major cause of morbidity and mortality worldwide, affecting about one in 1,000 people per year. The most common of these syndromes are deep venous thrombosis and its direct sequela, pulmonary embolism. Although specific risk factors for venous thrombosis have been well characterized (prolonged immobility, estrogens, major operations, trauma), genetic factors play a pathogenic role in at least a third of cases. Inherited mutations within the genes for the anticoagulant proteins antithrombin III, protein C, and protein S together account for only 5% to 10% of these thrombosis-prone families. A much larger number of these families have recently been found to have hereditary resistance to activated protein C, resulting from a highly prevalent missense mutation within the gene for coagulation factor V. The laboratory detection of this resistance to activated protein C is of clinical utility, as affected persons represent an important proportion of those with sporadic or recurrent thrombosis who may then benefit from prophylactic anticoagulant therapy.

Because activated protein C normally inhibits fibrin formation by cleaving and inactivating coagulation factors Va and VIIIa, the addition of activated protein C to normal plasma substantially prolongs the clotting time. In contrast, the addition of activated protein C to the plasma from patients with hereditary resistance to activated protein C does not adequately prolong the clotting time. The functional laboratory test for this disorder is therefore an "activated protein C resistance ratio," a ratio between two activated partial thromboplastin times (aPTTs), one with the addition of activated protein C and one without. Activated protein C resistance ratio testing on families with histories of thrombophilia has shown that this phenotype is inherited as an autosomal dominant trait.

The genetic basis for hereditary resistance to activated protein C has recently been defined as a single point mutation in coagulation factor V at the site where activated protein C normally cleaves and inactivates the factor Va procoagulant. One or both copies of the factor V gene from patients with resistance to activated protein C thus carry a single G to A missense mutation converting arginine 506 to glutamine. After activation, this mutated factor Va cannot be efficiently cleaved by activated protein C; its procoagulant activity therefore persists, and the risk of thrombosis subsequently increases. The increased thrombotic risk associated with the heterozygous factor V mutation appears to be about five to 10 times that of the normal population. The risk for patients carrying a homozygous factor V mutation is substantially greater.

The codon 506 factor V mutation is by far the most common genetic risk factor for venous thrombosis. About 20% of patients with a first episode of deep venous thrombosis and 60% of patients with recurrent or pregnancy-associated thromboembolism have functional resistance to activated protein C; the vast majority of these defects result from the codon 506 factor V mutation. This mutation is also prevalent in normal persons with heterozygote frequencies of 2% to 8% in different populations that have been screened. Of 197 randomly selected Red Cross blood donors in Portland, Oregon, for example, 15 (7.6%) were heterozygous for the codon 506 factor V mutation. The absence of disease in most of those carrying this mutation implies that, for most people, the formation of symptomatic thrombosis requires additional factors over and above this single defect. A two-hit hypothesis for thrombosis might explain some of these observations; patients with heterozygous resistance to activated protein C may then suffer thrombotic episodes only when additional thrombotic risks (genetic, physical, or biochemical) exist simultaneously. Examples of conditions likely to be synergistic with this disorder for symptomatic thrombosis include a second copy of the mutated factor V allele (that is, homozygosity), protein C or S deficiency, antithrombin III deficiency, the presence of a lupus anticoagulant, and homocystinemia. In support of this two-hit hypothesis, it has recently been shown that of heterozygous persons with activated protein C resistance, more than 70% with a simultaneous factor V mutation suffered a thrombotic event compared with only 30% of those without this second deficit.

Laboratory tests for the diagnosis of activated protein C resistance include the functional activated protein C resistance ratio test and the direct DNA-based detection of the factor V codon 506 mutation. The presence of this mutation can be directly determined by the isolation of DNA from peripheral blood leukocytes, PCR amplification with primers flanking the factor V mutation site, and digestion of the PCR product with the restriction enzyme *Mn*lI. As the mutation destroys one of the *Mn*lI sites within this amplicon, the mutant and wild-type alleles can be easily distinguished on a size-separating gel. In our laboratory, the correlation between the functional and DNA-based tests has been excellent. Anticoagulated patients cannot, unfortunately, be evaluated by the activated protein C resistance ratio test (a modified aPTT); the DNA-based test is then the only diagnostic alternative for this group. Additional clinical indications for the DNA-based (rather than the functional) test for hereditary resistance to activated protein C include patients with lupus anticoagulants, those with borderline activated protein C resistance ratios, the evaluation of homozygotes versus heterozygotes, and the confirmation of genotype in affected persons and their family members.

The accurate laboratory identification of hereditary resistance to activated protein C is of real clinical relevance because some, but not all, of these patients may benefit from long-term anticoagulant therapy. In particular, those heterozygous patients with several previous thrombotic episodes, those with a known genetic "second hit" (including homozygotes), and some with a single "spontaneous" episode of deep venous thrombosis (no known environmental risk) should probably be treated with long-term anticoagulants. In contrast, most heterozygous persons with either no history of thrombosis or with a single, previous episode of deep venous thrombosis induced environmentally (surgery, trauma, or prolonged immobility) should not always be prophylactically treated. Instead, these patients should be thoroughly advised of the signs and symptoms of deep venous thrombosis or pulmonary embolism, encouraged to seek early medical attention for their suspected occurrence, and given optimal antithrombotic prophylaxis for surgical therapy, pregnancy, and prolonged immobility. Until definitive clinical studies on these patient groups are published, these therapeutic recommendations are based on the fact that in the great majority of persons heterozygous for activated protein C resistance, thrombosis does not develop until additional "secondary" events occur.

Because this highly prevalent genetic mutation was identified only recently, the full spectrum of its clinical manifestations remains unknown. Does the highly prevalent factor V mutation, for example, contribute to the arterial thrombotic episodes that cause myocardial infarction and cerebrovascular disease? The absence of an increased frequency of heterozygotes in a population of elderly stroke patients suggests that this mutation may not predispose to common arterial thrombotic events. Alternatively, should laboratory screening for hereditary resistance to activated protein C be instituted in thrombosis-prone populations (pregnant women, patients with atrial fibrillation, and before major orthopedic operations) to identify those who might benefit from prophylactic anticoagulants? The answers to these and other pertinent clinical questions may allow us to direct antithrombotic therapy at those most likely to have thrombosis and, perhaps more important, to avoid it in others.

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Microalbuminuria

THE development of clinically serious nephropathy is a common complication of diabetes mellitus. At least 30% of new patients with end-stage renal disease have diabetic nephropathy. Among these cases, half have insulin-dependent diabetes mellitus (IDDM) and half have noninsulin-dependent diabetes (NIDDM).

The urinary albumin excretion in normal young subjects is less than 10 μg per minute (about 15 mg per day), but it increases slowly with age. Overt or clinically detectable proteinuria is commonly defined as a urinary albumin excretion rate greater than 200 μg per minute (about 300 mg per day). Thus, there exists an intermediate range of 20 to 200 μg per minute (30 to 300 mg per day) that is definitely not normal and is associated with major clinical findings. This persistent increase in subclinical urinary albumin excretion has been called "microalbuminuria." Hence, the term does not imply excretion of a variant of albumin but of smaller quantities than those detectable by traditional dipstick methods.

Microalbuminuria is strongly associated with the eventual development of nephropathy in 80% of patients with IDDM and 25% of patients with NIDDM. It is also associated with increased morbidity and mortality. Those IDDM patients with microalbuminuria who were treated for hypertension had substantial decreases in the urinary albumin excretion rate and a pronounced decrease in the rate of decline of renal function. Thus, microalbuminuria is an early marker for the development of diabetic nephropathy and possibly for increased mortality as well. The determination of this condition in patients who are "dipstick-negative" could be clinically important. It has been recommended that microalbuminuria be determined annually in patients with IDDM of more than five years' duration and in all patients with NIDDM. The detection of notable microalbuminuria in these patients may warrant altered treatment, even if other variables (such as blood glucose or glycated hemoglobin levels) are not substantially abnormal.

Although the primary indication for monitoring microalbuminuria is to evaluate the renal status in diabetes mellitus, recent studies suggest that such measurement may also be helpful in patients with preeclampsia, drug nephrotoxicity, and severe hypertension.

Traditional urine dipstick methods are not sufficiently sensitive to detect mild to even moderate microalbuminuria. More than a quarter of patients with IDDM and a third of those with NIDDM who were negative for albumin by dipstick were found to have clinically substantial microalbuminuria.

A variety of sensitive quantitative methods are available for monitoring microalbuminuria. These include radioimmunoassay, enzyme-linked immunosorbent assay, and nephelometric immunoassays. The clinical chemistry laboratory at our medical center (University of California, San Diego) uses a rate nephelometric assay. The method detects as little as 2 μg per ml of albumin. The preferred specimen is a 24-hour urine collection because this permits the rate of albumin excretion over a protracted period of time to be calculated. Because collecting a 24-hour specimen is not always feasible, timed, short-term collections may be used. Randomly collected specimens should be avoided because the rate of excretion cannot be calculated. If such specimens must be used, the creatinine concentration should also be measured and the ratio of albumin to creatinine determined. The normal urine albumin:creatinine ratio is less than 0.01. Patients with microalbuminuria generally have values greater than 0.02. In patients with IDDM, there is a strong association between the ratio determined in a four-hour collection and the 24 hour-urinary albumin excretion rate, with a high positive predictive value. The test costs about $65.

In addition to the importance of timed specimens, urine specimens should not be collected during periods of excessive exercise or prolonged standing. Specimens should not be collected from patients with hematuria or urinary tract infection. Glass containers should not be used because albumin adheres to glass.

Even when these guidelines are observed, day-to-day urinary albumin excretion rates vary considerably. The intraperson coefficient of variation on a daily basis may be as high as 45%. Therefore, it has been suggested that patients have at least three timed urine collections over a six-month period. A patient would be considered to have microalbuminuria if the urinary albumin excretion were increased in two of the three specimens.

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Continuous Infusion of Beta-lactam Antibiotics: A Rational Dosing Approach

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Introduction

ALTHOUGH beta-lactam antibiotics are typically administered intermittently, their use via continuous infusion is growing in popularity. The increased interest in continuous infusion is related to recent pharmacodynamic data that suggests that this mode of administration, as compared with intermittent dosing, may result in better clinical outcomes and less toxicity. In addition, with recent emphasis on pharmacoeconomic evaluation of drug therapy, continuous infusion may result in cost savings by decreasing the total daily dose and thereby decreasing the cost of therapy. This review will highlight the rationale for use of continuous infusion beta-lactam antibiotics and the clinical usefulness of this mode of drug administration.

Pharmacodynamic principles

Antimicrobial pharmacodynamics integrates pharmacokinetics and microbiologic activity to develop a relationship between drug exposure and bacterial killing. Routinely pharmacokinetic parameters such as the peak concentration, the area under the curve (AUC), and the elimination half-life ($T_{1/2}$) are derived from concentration-time profiles of the agent *in vivo.* Since, we are currently unable to measure drug activity at the binding site in bacteria, a surrogate *in vitro* marker, the minimum inhibitory concentration (MIC), is generally used to assess microbiologic activity. The integration of pharmacokinetics and microbiologic activity, MIC, results in the development of pharmacodynamic parameters. These parameters include AUC/MIC, peak/MIC, and time the serum concentration remains above the MIC (T>MIC).

For the beta-lactams (eg, penicillins and cephalosporins) the rate and extent of bactericidal activity reaches a maximum at approximately four times the MIC of the organism and is not enhanced with higher concentrations.[1] Numerous animal studies have also shown that the bactericidal activity correlates with the time of drug exposure, that is T>MIC[2,3,4] and, hence, these agents are classified as having concentration-independent or time-dependent bactericidal activity. Although, it is well established that T>MIC is the important pharmacodynamic parameter for efficacy of the beta-lactams, the optimal duration of time that the antibiotic concentration should remain above the MIC is unknown. Animal studies have suggested that serum levels should remain above the MIC for at least 50% of the dosing interval.[4] However, in order to optimize antimicrobial efficacy it would be prudent to maintain serum levels above the MIC of an organism for the entire dosing interval.

Another factor that must be taken into account when considering the appropriateness of dosing regimens is the postantibiotic effect (PAE), which is defined as the persistent suppression of bacterial growth after a brief exposure to the antimicrobial. It is this feature of the antimicrobials that lends credence to the use of discontinuous dosing regimens. In general, the beta-lactams have an appreciable PAE against gram-positive organisms *in-vitro* at concentrations of four to eight times the MIC; however, against gram-negative organisms the PAE is negligible

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and requires substantially higher concentrations of the antibiotic to demonstrate this effect.[5-8] Despite the reproducibility of the PAE *in vitro,* variable results have been obtained *in vivo* with both gram-positive and gram-negative organisms.[9]

Continuous Infusion in Animal Models

Numerous investigators have evaluated the effect of intermittent *vs* continuous infusion dosing regimens on animal infection models including the lung, CSF, soft tissue, and endocarditis. In experimental lung infections in nonneutropenic animals, continuous infusion was as effective as intermittent dosing, while in leukopenic animals continuous infusion was shown to be more effective.[10-12] In experimental pneumococcal meningitis efficacy was related to peak concentrations and duration of therapy rather than time of drug exposure.[13,14] This phenomenon may be due to the observation that the cerebrospinal fluid (CSF) is not readily penetrated because of the blood-brain barrier. Studies have not assessed the pharmacodynamics of beta-lactams against gram-negative bacterial meningitis. Studies in experimental soft-tissue infections have shown continuous infusion to have superior efficacy to intermittent dosing.[15] Although, numerous investigators have demonstrated the efficacy of continuous infusion beta-lactams in the treatment of experimental infections, it is often difficult to extrapolate these results to the clinical setting since experimentally induced infections may not entirely mimic infections established in humans. However, the animal data do not contain any findings to indicate that constant infusion therapy of beta-lactams is undesirable.

Pharmacokinetics of Continuous Infusion Beta-lactams

Very few studies have been conducted in humans describing the pharmacokinetic properties of continuous infusion beta-lactams. Since only the mode of administration is different, the half-life and clearance would remain the same in both continuous infusion and intermittent dosing schedules. In a study conducted by our laboratory, continuous infusion (CI) of ceftazidime was compared to intermittent dosing regimens in healthy volunteers.[16] The mean concentrations achieved after a 2 g CI/ 24h and a 3 g CI/24 h were 12.7 and 18.2 mg/mL, respectively. The Cmax of a 1 g q12h and 1 g q8h were 85.7 and 82.1 mg/mL, respectively. The total body clearance and half-life remained the same between the intermittent and continuous infusion regimens. The pharmacokinetic data derived from this study are similar to those previously published for ceftazidime by both routes of administration in patients.[17]

The desired bactericidal activity at the tissue level is dependent on the tissue penetration of the antimicrobial. In general, most beta-lactams distribute well into extravascular space and achieve rapid equilibrium with serum. A study conducted by Mouton et al examined the serum and blister fluid concentrations of ceftazidime administered intermittently and by continuous infusion.[18] Healthy volunteers were administered a 75 mg/kg/day dose either as a 25 mg/kg q8h or a 15 mg/kg bolus followed by a 60 mg/kg/24 hour infusion. The blister/serum ratio, as measured by AUCs of the two compartments was 101% *vs* 85% for intermittent and continuous infusion dosing regimen, respectively. Tissue penetration of various other beta-lactams (cefuroxime, aztreonam, ampicillin) have been studied in animal models with similar results.[19] It is important to assess the concentration in hard to penetrate areas such as the CSF. Penetration of amoxicillin via continuous infusion into the CSF has been studied in six patients, in whom the CSF concentration was approximately 30% of serum concentrations.[20] Studies conducted in animal models have shown similar penetration of beta-lactam antibiotics into the CSF by continuous infusion.[21,22] Continuous infusion administration produces penetration ratios of serum/tissues similar to intermittent dosing, however, differences have been observed when the former was started without a bolus infusion.[19]

Continuous Infusion of Beta-lactams in Humans

Only few randomized studies have been conducted evaluating the role of continuous infusion beta-lactams in humans. Zeisler et al compared the efficacy of cefuroxime administered by continuous and intermittent infusions.[23] Continuous infusion demonstrated a shorter length of treatment, lower total dose, and shorter length of hospital stay. In addition, cost-savings were demonstrated with this route of administration. In a study by Bodey et al continuous *vs* intermittent infusion of carbenicillin in combination with cefamandole was evaluated for the treatment of febrile episodes in cancer patients.[24] A higher percentage of treatment cures was seen in patients receiving the continuous infusion regimen compared to intermittent dosing. Few case reports of successful utilization of continuous infusion ceftazidime for the treatment of pseudomonas infections in patients with cystic fibrosis have been published.[25,26]

Despite the scarcity of human data with regard to the clinical utility of continuous infusion beta-lactam therapy, this mode of administration appears to maximize clinical outcomes by optimizing the pharmacodynamics of these antimicrobials. In a study conducted by our laboratory, the T>MIC for CI ceftazidime *vs* intermittent dosing was assessed for *Pseudomonas aeruginosa*.[16] The 1g q8h and 1g q12h regimens provided T>MIC of 82% and 52%, respectively. In comparison, both the 2 and 3 g CI regimens maintained the T>MIC for the entire dosing regimens. Therefore, CI optimizes the pharmacodynamic profile of ceftazidime by providing adequate antibacterial activity over the entire 24-hour dosing period.

Pharmacoeconomic Consideration

With the implementation of continuous infusion beta-lactam therapy a substantial cost savings may be realized. This administration technique will reduce the total daily dose, thereby decreasing drug acquisition cost. However, pharmacoeconomic analysis encompasses more than just drug acquisition cost; costs of dose preparation (pharmacy labor and time for IV admixture), and drug administration (nursing labor and time) are also incorporated. Zielser et al demonstrated cost savings based on drug administration and acquisition costs when cefuroxime was administered via continuous infusion.[23] Additional cost benefits may be derived from avoidance of drug toxicities and the related cost of treating these toxicities.

In order to reduce the length of hospitalization, an increased emphasis has been placed on the use of home infusion therapy. Continuous infusion of beta-lactam antibiotics with short half-life, may provide a safe and cost-effective means of delivering home intravenous therapy. This mode of administration is feasible both in the institutional as well as the home setting, since most commercially available parenteral preparations of beta-lactams are stable at room temperature for a 24-hour period. Thus, special handling would not be required for appropriate use of these agents.

Clinical Implication

Previously, the delivery of constant levels of drug was by the intravenous drip method, which is inaccurate and labor intensive. Inpatient infusion pumps were generally in short supply and very expensive. These factors, as well as a lack of complete understanding of antibiotic activity, caused continuous infusion therapy to remain unpopular as a means of drug administration. Recently small, portable, light weight, and accurate infusion devices have been developed. Many manufacturers provide these devices at low or no cost to hospitals, in the hope that they will gain sales of the disposable sets and lines needed for use with the pumps. This change is making it possible once again to consider the constant infusion of antibiotics in an era of cost consciousness and ambulatory patients.

Despite a sound scientific basis for the continuous infusion approach, widespread acceptance of this mode of administration may not occur until more clinical trials are available that evaluate the efficacy of this method. The extensive pharmacodynamic data on beta-lactams indicate that continuous infusion will either result in superior or equal bacterial eradication in clinical use. As a result, we will be conducting a clinical trial at Hartford Hospital utilizing continuous infusion ceftazidime with once-daily aminoglycosides for the treatment of nosocomial pneumonia. This protocol is designed to assess the clinical utility of this mode of drug administration with emphasis on clinical efficacy and economic benefit. In addition, pharmacodynamic data such as the T>MIC of this regimen will be assessed and used to correlate clinical efficacy with pharmacodynamic principles. Data from this trial will be used to establish a hospital-wide program utilizing this mode of administration.

Conclusion

Interestingly, when penicillin was introduced in the 1940s it was given by continuous infusion, mainly because of its limited supply. When it became available in unlimited quantities, the response was to give large and frequent doses in the belief that this approach would improve bacterial killing. However, recent pharmacodynamic data clearly indicate that these large and frequent doses are not only unnecessary for adequate bactericidal activity, but substantially increase costs without adding clinical benefit. Since it is apparent that it is the duration rather than the magnitude of the level above the MIC that is crucial for adequate bactericidal activity, it appears that the time has come to return to continuous infusion of beta-lactam antibiotics.

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Call For Assistance

The Albert Schweitzer Institute for the Humanities invites you to join a team of clinical specialists in a humanitarian effort to bring essential medical services to the people of Nickerie, Suriname, a developing region on the northern coast of South America.

As part of its Program for Health Care Development, the Albert Schweitzer Institute has been providing medical supplies, equipment and educational programs to Suriname for the past several years. More recently, we have been working collaboratively with the Inter-American Development Bank and the Health Ministry of Suriname to renovate and staff a 75-bed hospital in Nickerie, a relatively remote region with approximately 40,000 inhabitants.

With completion of the construction project scheduled for the end of this year, we are now seeking to recruit specialists in Internal Medicine, Surgery, Anesthesiology, Obstetrics and Gynecology, and Pediatrics. Our goal is to introduce and maintain an acceptable level of medical services provided by qualified specialists from the United States and elsewhere over the next three to five years, while, at the same time, facilitate training of indigenous physicians, nurses and administrators who will ultimately assume permanent responsiblity. Fortunately, a well-trained Hospital Administrator and Medical Director are already on-site.

Suriname is a scenic, tropical country formerly known as Dutch Guyana, that gained independence from Holland in 1975. Its highly literate, multi-cultural population of 400,000 is governed by a parliamentary democracy and is officially represented at the United Nations. In recent decades the country has suffered severe economic decline, disruption of its infrastructure and environmental ecology, and serious decline in the level of available medical services and health care indices.

The district of Nickerie, the second most populous in the country, has been especially hard hit. Nickerians are a hospitable, community-minded people, passionately supportive of this project and willing to open their homes to visiting physicians and their families. The official language is Dutch, although most people communicate fluently in English.

Interested physicians willing to spend a minimum of three months working with colleagues at the Nickerie Hospital may obtain further details by communicating with: Julius Landwirth, M.D., J.D., Program Chair, Health Care Development, Albert Schweitzer Institute for the Humanities, P.O. Box 550, Wallingford, CT 06492-0550.

MORBIDITY AND MORTALITY WEEKLY REPORT

Update: Trends in AIDS Among Men Who Have Sex With Men—United States, 1989-1994

DURING 1994, local, state, and territorial health departments reported to CDC 34,974 cases of acquired immunodeficiency syndrome (AIDS) among men whose only reported HIV exposure was sexual contact with other men. Although previous reports indicated progressively smaller annual increases in cases of AIDS among men who have sex with men (MSM),[1] male-to-male sexual contact continues to represent the most frequently reported mode of HIV transmission among persons with AIDS. This report summarizes trends during January 1989-June 1994 in the occurrence of AIDS among MSM aged ≥13 years.*

For this analysis, AIDS surveillance data were reported from the 50 states, the District of Columbia, and Puerto Rico for six-month reporting periods (ie, January-June and July-December). Because the AIDS surveillance case definition was expanded in 1993, trends in AIDS incidence are evaluated using the estimated incidence of AIDS-defining opportunistic illnesses (AIDS-OIs).[2] Estimated AIDS-OI incidence is the sum of the observed AIDS-OI incidence and the incidence based on estimated dates of AIDS-OI diagnosis for persons reported with AIDS based only on severe immunosuppression[†]; both incidences are adjusted for reporting delays and anticipated redistribution of cases initially reported with no identified risk. Because the estimated dates of AIDS-OI diagnosis are based on data from a longitudinal record review project of persons in care, these rates account for changes in AIDS-OI incidence reflecting the effects of antiretroviral therapy or prophylactic therapy for *Pneumocystis carinii* pneumonia.[2] To calculate rates for 1989-1990, the denominators were derived from 1990 U.S. census population estimates; rates for 1991, from 1991 intercensal estimates; and rates for 1992-1994, from 1992 intercensal estimates. For analysis of data by metropolitan statistical area (MSA), denominators were derived from 1990 census data for the United States and Puerto Rico.

From January-June 1989 through January-June 1994, rates of AIDS-OI for MSM increased 31%, from 12.1 to 15.9 cases per 100,000 males aged ≥13 years (Fig. 1).

Rates varied subtantially by geographic region[§]: in the Midwest and South, rates increased 51% (from 5.7 to 8.6) and 49% (from 11.6 to 17.3), respectively. Increases were smaller in the West (21%; mid-1994 rate: 21.7) and the Northeast (13%; mid-1994 rate: 15.0).

Increases also varied by race/ethnicity (Fig. 1), and during January-June 1989 and January-June 1994, rates were highest among black men (20.8 and 37.3, respectively); the largest proportionate increase in rate (79%) during January 1989-June 1994 also occurred among black men. Rates also increased among Hispanic men (61%, from 14.0 in mid-1989 to 22.6 in mid-1994), American Indian/Alaskan Native men (77%, from 3.9 to 6.9), Asian/Pacific Islander men (55%, from 4.0 to 6.2), and white men (14%, from 10.7 to 12.2). Among males in the

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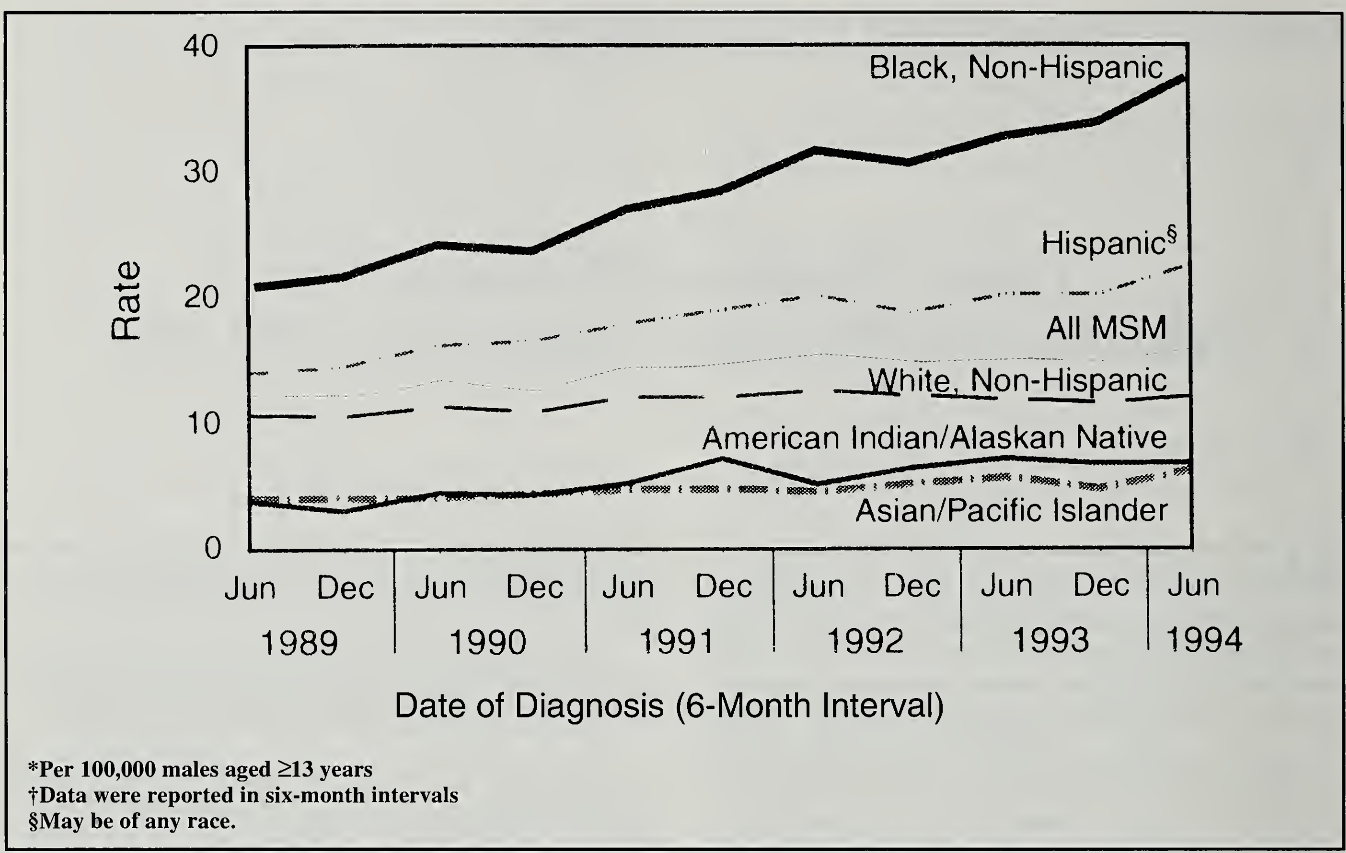
*Single copies of this and the following report in this issue will be available free until June 1, 1996, from the CDC National AIDS Clearinghouse, P.O. Box 6003, Rockville, MD 20849-6003, telephone (800) 458-5231 or (301) 217-0023.

[†] CD4+ count <200 T-lymphocytes/μL or a CD4+ T-lymphocyte percentage of total lymphocytes of <14.

[§] Northeast=Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; Midwest=Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; South=Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; and West=Alaska Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.



***Per 100,000 males aged ≥13 years**
†Data were reported in six-month intervals
§May be of any race.

Figure 1.—Estimated rate* of AIDS defining opportunistic illnesses among men who have sex with men (MSM), by race/ethnicity and date of diagnosis—United States, 1989-1994†

youngest age group (13-24 years), rates increased for blacks (31%, from 5.2 to 6.8) and Hispanics (39%, from 2.3 to 3.2) but decreased (31%, from 1.6 to 1.1) for whites.

By region, the largest race/ethnicity-specific increase in rate occurred among black men in the South (109%, from 16.0 to 33.4). The only decrease occurred among white men in the Northeast (7%, from 10.0 to 9.3). Differences in rates between white men and black and Hispanic men increased in all regions during the five-year period.

The increase in rates also varied substantially by size of MSA. Although rates during mid-1989 were lowest (2.6) in rural areas (ie, population <50,000), the percentage increase in rate was highest in these areas (69%; mid-1994 rate: 4.4) and in MSAs with populations of 50,000-1 million (55%; mid-1994 rate: 10.2). In comparison, although rates during mid-1989 were highest (20.8) in the largest MSAs (ie, population >2.5 million), these MSAs were characterized by the smallest five-year percentage increase (19%; mid-1994 rate: 24.8).

Since June 1981, three MSAs (New York, Los Angeles, and San Francisco) have reported 27% of all AIDS cases among MSM. During the five-year surveillance period, rates of AIDS-OI in these three MSAs increased 8%, 12%, and 7%, respectively, (mid-1994 rates: 44.4, 34.9, and 127.7, respectively). In all three MSAs, the rate for white men decreased (20%, 16%, and 3%, respectively), and the rate for black men increased (49%, 48%, and 53%, respectively).

Reported by: Local, state, and territorial health departments. Division of HIV/AIDS Prevention, National Center for Prevention Services, CDC.

Editorial Note: The findings in this report indicate a continuing increase in the occurrence of AIDS-OI diagnosed among MSM during January 1989-June 1994, although increases during this period were smaller than earlier in the epidemic. This decline in the level of increase in AIDS cases among MSM began during the late 1980s[1] and may reflect, in part, decreases in high-risk sexual behaviors and HIV incidence among MSM during the mid- to late 1980s.[3] However, the occurrence of AIDS among MSM is high (151,994 new AIDS cases were reported among MSM during the five-year period), and cases of new infections continue to occur, especially among young MSM. For example, during 1992-1993, HIV seroprevalence was 4.8% among MSM aged 18-23 years in San Francisco[4] and, during 1990-1991, 9% among MSM aged 18-24 years in New York City.[5] During the same periods, the overall rates of new HIV infections among MSM in San Francisco and New York City were 1.2% and 2%, respectively.[4,5]

Regardless of mode of transmission, the incidence of AIDS has been higher among black and Hispanic men than among white men.[6] Factors potentially associated with the increased risk among racial/ethnic minorities include decreased access to HIV-prevention services, higher rates of sexually transmitted diseases,[7] and culturally inappropriate HIV-prevention activities.[8] This report documents the disproportionate occurrence of AIDS among black and Hispanic MSM compared with white MSM during January 1989-June 1994. This finding underscores the need for community planning groups to consider culturally appropriate prevention services when addressing the HIV-prevention needs of racial/ethnic minorities.

The use of rates to evaluate trends in estimated AIDS-OI incidence allows comparison of the impact of the epidemic among persons in different racial/ethnic groups, geographic regions, and age groups. However, rates calculated with denominators comprised of all men underestimate the impact of the epidemic among MSM because the true denominator of MSM at risk is substantially smaller than census counts of all men aged ≥13 years. Geographic differences in rates of AIDS attributed to male-to-male sexual contact may reflect variations in the prevalence of homosexual behavior and in the prevalence of HIV infection in different communities. For example, when compared with men living in rural areas, the prevalence of men who self-identified as homosexual was seven times greater among men in the 12 largest central cities.[9]

The AIDS epidemic among MSM should be viewed as a composite of multiple epidemics with different times of onset and patterns of spread. AIDS surveillance data collected by health departments should be used to characterize and track local epidemics and to assist community planning groups and providers in designing and implementing HIV-prevention programs at the community level.[10]

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Reforming The Reformers?

When President Clinton unveiled his health care reform package, much of it seemed very familiar. The foundations of his plan—quality, responsibility, simplicity and choice—also happen to be four key principles of M.D. Health Plan.

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Medical Practice in Plainfield Fifty Years Ago

JOHN A. WOODWORTH, M.D.

I entered the general practice of medicine in the Moosup Village part of Plainfield in 1945, a half-century ago. What was Plainfield like at that time?

Well, Moosup even then had a somewhat more centralized business area than Plainfield. It's true that you could no longer hop on a trolley to Central Village, but some of the trolley tracks were still in place on the road to Central Village when I served in Moosup, but there was a railroad station, now gone, where you could take a train to Providence or New York. Route 12 through Plainfield was the principal north-south highway in eastern Connecticut. There wasn't any such thing as the Connecticut Turnpike or Route 395.

Dr. Woodworth, in Moosup, circa 1945

Everybody had a radio. But nobody had a TV. Children find this hard to believe. There isn't even a mention of television in the "latest" Encyclopedia Britannia that I bought in 1946.

Schools. Each village had its own grammar school. There was no consolidated school.

There was an indoor movie theater in Moosup and one in Plainfield. No one had thought of drive-in movies. These are all gone.

Plainfield's factories were busy manufacturing textiles. The U. S. Finishing Company in Sterling produced fine dyed cloth. In Moosup, there was the Brunswick Worsted Company and the Cranska Cotton Thread Mill. In Central Village, there was the Wyandotte Worsted Company. In Wauregan, the Atwood family produced the finest of cotton shirts in the Wauregan Mills. In Plainfield, bathrobes were manufactured by Royal Robes; and plastic curtains and plastic-lined clothing were made by the Plastic Film Company. Moosup also had Majestic Metals which made women's compacts. Only Plastic Film survives.

Pontiac cars were sold by Phillips garage in Plainfield. Paul Roper and Sons in Moosup sold Nash cars, and Heywood in Central Village sold Fords. Seidmans had 5 and 10 cent stores in both Moosup and Plainfield. Women's clothing could be bought at the Misses Dore store next to the Bellavance Store on Main Street in Moosup, where you could buy newspapers and ice cream sodas at the fountain. Lester and Lowell Salisbury, at the C. D. Salisbury Store, and Mr. Despathy (pronounced DePortsy) sold furniture. The Marchesseault family ran a hardware and variety store next to Bellavances. And near them was the Plainfield National Bank of Moosup. Ben Dawson was the bank president; and his brother, who was pretty deaf, was a piano tuner. In Central Village there was a one-armed paper hanger.

Immigrants from Finland seemed to favor the area around Plainfield. They and many Jewish refugees from the Holocaust in Europe settled here and made a living raising chickens or producing eggs. When I first came to the area I thought there were too many motels—but they were chicken coops, not motels!

JOHN A. WOODWORTH, M.D., retired since 1980, now lives in Hampton. Expanded from a talk presented at a meeting of The Plainfield Historical Society, Plainfield, on 26 April 1995.

Plainfield had its own weekly newspaper—the Moosup *Journal*, which was first published in 1900. In January 1946, a month after I arrived, the newspaper noted that the Brunswick Mills announced the third five-cent-per-hour pay raise since converting to civilian production of worsted cloth. That brought its minimum wage to 75 cents an hour!

It seems incredible now that there were four other doctors practicing in Plainfield when I settled here. Dr. Alphonse Garcia and Dr. Arthur Couture were practicing in Moosup, and Dr. Arthur Chase and Dr. Angelo Gulino were practicing in Plainfield. Dr. Garcia delivered babies at the Sunshine Maternity Home in Oneco, run by Mrs. Sherman. We all made a living even though Eastern Connecticut was considered a depressed area for years. In general, Plainfield people paid their bills. Patients typically paid three dollars for an office visit, five dollars for a house call. Dr. Perreault, Danielson's faithful obstetrician, was asking fifteen dollars to deliver a baby at the hospital. All those physicians are dead.

My wife and I and our daughter, Anne, six years old, moved into the upstairs apartment of an old building in front of Leo Farland's machine shop in the center of Moosup across from Bellavance's store. (The old building has since been torn down to make room for a gas station.) I rented three rooms in a small house at the corner of River Street and Sterling Hill Road in Moosup's south end for my office. To reach it, people in Moosup had to go over a bridge across the Moosup River. Before I had my examining table set up, patients were stepping over packing boxes to see the new doctor. That winter the bridge went out after a flood, and patients had to make a detour of several miles to get to my office. This didn't seem to discourage them.

In a few months, I moved my office to the spacious rooms on the ground floor of the house we were living in. It was very convenient to be able to see patients for acute illness or emergencies at odd hours outside of my regular visiting hours without having to go outdoors or travel to an office situated at a distance from my home. On the whole, people respected our privacy, and through the years the times when this availability was abused were so relatively rare that I can remember them. One example was a patient who knocked on my door at midnight and wanted me to take care of his ingrown toenail. He couldn't come to my office during my visiting hours. He worked nights and slept days.

I hadn't been in practice a week, when I received a call late one night from a lady in Sterling who thought she was about to have a baby. I hadn't taken care of a pregnant patient for six years. I'd been in the Army and seeing only males. I had no sterile gloves in my black bag. Nothing to tie off the umbilical cord. No sterile instruments. I went to Sterling and examined the patient. Her pains were coming pretty often. She definitely was about to have a baby and there wasn't time to get her into the hospital. I panicked. I called old Dr. Chase and confessed my problem. All he said was "I'll be right over." I reassured the patient that help was on the way, and waited until I was certain that she was not about to precipitate and that Dr. Chase would be arriving. Then I went out to my car and slumped ignominiously down in my seat so the lights of his car wouldn't show me sitting there. He trotted into the house with his little black bag, and I drove home, not feeling very much like a real country doctor. I lost little time in getting the necessary items in my bag and soon got over my inferiority complex.

The next winter was a winter of heavy snows. One day I got a call from the Pike family who lived way out on the fringes of Oneco on the edge of the primeval forest. It sounded like someone there might be having heart failure. Over the phone, Old Man Pike warned me that I might have trouble because the roads were knee-deep with snow and hadn't been plowed yet. I transferred the contents of my black bag into a backpack, put on high-topped boots, bundled myself into all my warm clothing, took down my trusty pair of half-foot-wide, ten-foot long hickory skiis and set bravely off in my Ford ready to pit my strength against the Oneco wilderness.

The roads past the Oneco quarry were all dirt roads then. They had been plowed to about two miles from the Pike house. From there on I was on my own. I parked the car, put on the backpack, and skied the two miles to make my house call. I survived the day—and so did the patient. Last year, an article in the *Norwich Bulletin* claimed that I carried those skiis in my black bag. The story was slightly exaggerated.

When I first started my practice, I had to make up my mind as to what hospital I would use. I wanted to be affiliated with a good hospital and work with other doctors. As it is now, Moosup was about the same distance, (20 miles), from three hospitals. I visited all three to see what they were like—the Windham Community Hospital in Willimantic, the Backus in Norwich, and the Day Kimball in Putnam. It seemed to me that the staff and the size of the hospital at the Day Kimball were more friendly than at the others. The Backus was a close second in its attraction for me. Most people in the community of Plainfield seemed to be more oriented to these two hospitals than to the one in Willimantic. I applied for staff privileges at both and was accepted. It was not long before I found this not to be feasible because it involved too much travel if I were to try to make daily trips to each. And it doubled the number of meetings I would have to attend. I resigned my appointment at the Backus, and was active at the Day Kimball until I retired from practice.

John A. Woodworth, M.D., circa 1950

There was an additional incentive to choose the Day Kimball. At that time Dr. Karl Phillips was Chief of Staff. He called me aside to interview me. After a while, he wanted to know what I had been doing mostly in medical practice in the Army after returning from overseas duty. I told him I had taken special courses in cardiology and had special knowledge in taking and reading electrocardiograms. "Well," said Dr. Phillips. "We need a cardiologist on the staff. So you'll be our staff cardiologist and help Dr. Florence Prosser do EKGs." Can you imagine becoming a specialist so easily? But that's the way things were done then.

The first EKG machine that I bought was the very latest thing in technology. It was essentially just a galvanometer. You are familiar, I know, with a voltmeter. When you hitch it up to a current, a needle swings over, and the more voltage there is the farther the needle swings. It had been known for years that a heart beats under the control of tiny electric currents that spread out from the heart and escape all over the body. To capture and record those tiny electric currents, researchers found that a thread-like strand of crystalline quartz not much coarser in gauge than a spiderweb served well as the voltmeter "needle." Remember when we took physics in high school? We learned that when an electric current passes through a wire, a magnetic field is produced around the wire. If then you mount this wire between the poles of a powerful magnet, the interaction of the tiny magnetic field around the wire with that of the magnet causes the wire, if it is fine enough and flexible enough, to move towards one of the poles of the magnet. How far it moves and in what direction depend on the magnitude and the direction of the tiny current that the wire is transmitting. Using wires placed on various parts of the body and connected to the quartz string, they found that the quartz string became a perfect voltmeter. A bright light was made to shine through a narrow slit and through the space between the poles of the magnet. A shadow of the quartz string was produced—a shadow that moved with every beat of the heart. The motion of the shadow could be recorded as a line on a photographic film that was made to run past the magnet opening on the side opposite the light source. Other lines could also be cast upon the film to show time intervals and voltages, thus following accurate measurement of the electrical currents produced by the heart. The photographic film had to be removed from the EKG machine, like film from a camera; and developed the same way as photographs are. As cumbersome as all that seems when compared to the marvelous electronic and computerized machines we have nowadays, that quartz-string EKG machine not only produced records as accurate as the new gadgets, but it also made the physiologic principles involved easily understood. Such a machine was expensive for those days—around three hundred dollars. Dr. Prosser and I charged five dollars for taking and reading an EKG.

The next step in technology was an EKG machine with a built-in developer solution system that enabled the photographic film to roll out of the machine already developed so the cardiologist could have an immediate reading of a patient's EKG at the bedside. The trouble with this machine was that it was heavy and cumbersome, and the developing solutions were always splashing and corroding things. We were happy when direct-writer EKG machines came along using heat-sensitive paper to record the movements of a hot voltmeter needle activated electronically in some way beyond my mental grasp.

A family doctor dispensed a lot of medicines 50 years ago. He needed to have them when he made house calls, and his bag was fitted with fold-out compartments and leather belts holding rows of glass pill bottles. There were small pouches for vials of injectable drugs such as adrenaline, heart medicine, morphine, etc, for emergency situations. When my old black bag became torn and shabby, I became ashamed to carry it around, and bought a new one. I'm sorry now that I threw the old one away, because I know you would have liked to see it.

The big problem with having a large supply of medicines on my office shelves to dispense at a savings to patients over what they would have to pay for prescriptions, was that medical and pharmaceutical progress soon made many of those medicines obsolete. I couldn't return them, and because they were no longer suitable, I had to throw them out. I depended more and more on prescription writing, although I retained small supplies of medications to dispense at night and to replenish those I used out of my bag on house calls so patients wouldn't have to wait until next morning to start taking medicine. Lavallee and Brennan's Pharmacy in Moosup was the area's prominent drug store. It has long since been replaced by The Town Pharmacy.

I, or my girl Friday (my wife, or my office assistant), trained by me or my wife, who was an R.N. (and the best one I ever knew), sterilized gloves, syringes, and needles in a small electrically heated water sterilizer in my office. I also devised small packets of towels, bandaging, and surgical instruments that I took to the hospital where technicians were willing to run them through the hospital steam sterilizer for me. With these in my bag I could perform minor surgical procedures on house calls or at accident scenes using the latest sterile techniques. Among the procedures I performed hundreds of times in patients' homes were: tapping the chest and removing pints or quarts of fluid that had accumulated, for example, as a result of heart failure, cancer, or pleurisy. I also removed fluid, sometimes as much as a gallon at a time, from the abdominal cavity of a patient, through a trocar inserted through the abdominal wall while the patient, usually one with advanced disease of the liver, sat in a chair. I stitched up lacerations, large and small, and opened eardrums that were swollen and painful at a time when such treatment was the accepted thing.

In my office I had my microscope that I had used in medical school. I did my own blood counts and microscopic examination of body fluids such as urine, spinal fluid, sputum, and smears of swabbed material from infections. I did spinal taps in my office, and I had a centrifuge to concentrate the spinal fluid for microscopic diagnosis; and took samples of it as well as specimens of blood or urine or from infections to the hospital for bacteriologic diagnosis.

I took special postgraduate courses in cardiology, the diagnosis and treatment of lung disease, electrocardiography, x-ray diagnosis, and other specialties in Boston, Hartford, Montreal, and other centers. I was not long in practice when I bought an x-ray machine that greatly expanded what I could do readily for patients without their having to travel 20 miles to a hospital. It also was a boon because I could find out at once, right in my office, whether a patient had a fractured collarbone, wrist, arm, leg, or ankle. This meant that I could decide quickly whether or not the injury was one I was capable of treating or one requiring referral to the hospital or to a specialist. I reduced fractures of the wrist and fingers, usually under local anesthesia, and applied plaster of Paris or other splints. I reduced fractures of the ankle and dislocations of the shoulder, usually with the help of light anesthesia using nitrous oxide, ether, or chloroform. With my x-ray machine I discovered unsuspected cases of tuberculosis, lung cancer, collapsed lung, lung cysts, heart disease, fractures of the spine, and rib fractures.

I performed many surgical procedures early in my practice that I considered within my capabilities, knowing that I could do them well. I removed benign tumors of the skin or of the scalp. I biopsied skin lesions suspected of being cancerous. Small but troublesome benign moles or nevuses I removed with a high frequency current spark with an instrument called a Hyfrecator. I reconnected severed tendons in the hand or wrist. I repaired extensive avulsion lacerations of the face, ear, or scalp in my office. These procedures were really plastic surgery for which I charged fees of from 25 to 35 dollars. These procedures nowadays would involve travel to a medical center, extensive tests, laboratory charges, hospital operating room charges, and specialist fees—all amounting to thousands of dollars. In those days there was a tacit trust between patients and doctors, and suits and litigations over treatments were extremely rare. I was never sued. I passed two IRS investigations with flying colors.

I practiced obstetrics and delivered patients at the Day Kimball, for 25 dollars at first. I may have delivered two or three babies in the home, but home deliveries were not part of my intended practice. I initiated pulmonary testing at the hospital and in my office. I gave anesthetics in the hospital operating rooms. I participated in being on call for emergency room service. I took my turn in performing autopsies at the hospital before pathologists came on our staff. Later, with a visiting pediatric cardiology consultant from Hartford, I ran a pediatric cardiac clinic at the hospital for 20 years. I was one of the first to use an external defibrillator and external cardiac massage in heart attack patients at the hospital.

The hospice as we know it now did not exist. Doctors are only human, and many were, and still are, reluctant to come to terms with death. It took considerable experience and gumption, but I finally broke the ice with my terminally ill patients and began to talk with them about their fears and concerns over their approaching death. It was a revelation to me and opened up an entirely new and affective relationship with my patients. I found a new definition of love.

As busy as I was, and I find this hard to believe now when I look back upon it, I found time to enjoy country life and living. In the early years, I attended patients at the hospital in the morning. I had office hours from one to three in the afternoon. I would then go out on several house calls. I kept my trout rod and fishing boots in the trunk of my car. And many, many times, I had time to spend an hour or two on the Snake Meadow Brook or the Quandock River or a little brook in Canterbury, before hurrying home in time for supper before my evening hours from seven to nine or whenever the last patient went out the door. Somehow, I was able to stand the loss or lack or sleep because of late- night emergencies such as obstetrical deliveries or the need of my services as anesthetist for an emergency operation at the hospital. It wasn't long, however, before my increasing work load made it impossible to find time to fish, unless I took time off now and then. I had to, to keep a proper perspective and to recoup my body's resources. It was difficult to get adequate medical coverage by other doctors when I went away on vacations. I know that there were many times it was difficult for people to get a doctor. I was and am sorry about that, but I still believe that by taking periodic rests on vacations I was able to give better service over more years than I could have otherwise.

During the first year of my practice, I was fortunate in being presented an opportunity to care for a family several members of which I found were afflicted with a rare type of hereditary ataxia. Since they had not previously been diagnosed or studied, I entered on a clinico-pathologic study of this family over many years which culminated in a scientific paper published in a nationally recognized medical journal.[1] It was gratifying to me, a small-town general practitioner, to have made a significant contribution to the medical literature, one that received worldwide attention and has been widely quoted in articles and textbooks of neurology, and even today has practical clinical significance in current genetic counseling of the descendants of that family. I also contributed two other minor articles that were published in *The Connecticut State Medical Journal.*[2,3]

Fifty years ago, I charged my private hospital patients five dollars for each day I visited them, and additional charges for any special procedure.

It was the accepted thing 50 years ago to treat anyone needing care regardless of ability to pay. The very common practice of earlier years of paying a doctor in kind with produce or goods in place of cash was beginning to die out, although I can remember a few instances in which I accepted vegetables or eggs or chickens in lieu of cash from a grateful patient. At the hospital, doctors on the medical staff took turns taking care of patients called ward patients without charge. They were indigent people, or at least so poor they really couldn't afford to pay for their care. We had a small medical ward with about six beds in it for them. Each doctor would be on ward service for a month at a time. There was also a surgical ward, and surgeons operated on and provided postoperative care without charge for that same class of patients .

I took care of many patients in convalescent homes. If the home called me to see a particular patient, I charged five dollars. If I was asked to see other patients at the home while I was there, I felt it was only fair to reduce the charge by half for each additional patient because I was already there, and my visit to them did not involve travel.

Times changed. The state declared that there would no longer be ward or free patients. The state would pay the doctors. Everybody had to be treated like a private patient. Each doctor had to decide what a usual or fair and customary fee should be for each patient. The amount he decided upon would be frozen for a number of years and he could not change it. The result was that doctors took into account rising costs and inflation, and increased their fees by a modest amount in setting their fees to the state when this new system began. These changes in medical care, and in the way it was paid for, caused an upheaval in how doctors practised and how they made their living. As an example of what happened, consider the convalescent home patients I visited. The state now insisted that hospital and convalescent home patients had to be seen at regular intervals whether they needed a visit or not. Every patient had to be treated as a private patient. The fee charged had to be uniform. Almost overnight, my income rose considerably, because now, when I went to a convalescent home or to the hospital and visited 10 patients, I had to charge 10 dollars each, and I received 100 dollars instead of the 32 dollars I had been getting for the same service. The public was not made aware that a great proportion of the rise in doctors' incomes at that time was due to these sociologic and legislative changes.

I practised in a golden age of medicine because I was considered morally responsible and capable of determining what procedures and diseases I was capable of handling, and which ones I should refer to more capable hands. Government and lawyers weren't constantly interfering with this freedom of choice and the sanctity of the physician-patient relationship. As time went on and specialists moved into the Putnam area, I shed one by one the specialties I was practicing. I sold my x-ray machine to an orthopedist, after using it for 20 years, for more than I had paid for it. He is still using that machine, with some modern modifications, 15 years later. When orthopedists became readily available in the area, I stopped treating fractures. As more and more surgeons became available, I did less and less office surgery. I enjoyed obstetrics and hated to give it up, but specialists and new techniques made it necessary. Most of all, I enjoyed working with children. Then pediatrics became more and more complex and pediatricians more and more available, and I saw fewer and fewer babies and children. As the years went by, I narrowed my practice more and more to cardiology.

But now we are getting away from the topic of medicine as it was practised in a small town 50 years ago. It is a different world now. But each new, young doctor is more attuned to his world than we oldsters. He can adapt to it, and helps to influence it.

I have had a rich and rewarding life as a general practitioner in Plainfield. If I had to do it all over again, I would still choose this town. I tried to do my best to provide the best medical treatment I knew how at all times and to every one of my patients. When I felt that I could no longer keep up with the very best as provided by newly arrived doctors, I felt it was time to step down and to leave the field for them. Besides there were a lot of other worthwhile things I wanted to do before I died. Fifteen years have gone by since I retired, and those activities still keep me very busy.

I believe that my story of a small-town doctor starting practice a half century ago is representative of most doctors—as much now as then. Most doctors today still care as much for their patients as we old-timers. They practice under a different set of difficulties. I do not envy them. I am proud to be a physician.

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The Future of Physicians and Private Practice

THEODORE ZANKER, M.D.

Address to Connecticut Health Lawyers Association Symposium
9 June 1995

I am truly honored to be invited to speak before such an auspicious group. I have had the pleasure of working collaboratively with several of you, and I've always been impressed by the quantity of brain power each of you brings to the tasks you undertake. So it is with some trepidation that I stand before you today, charged to play the role of a futurist from the perspective of a practicing physician and a leader in organized medicine.

We are all aware of the incredible pace of change in how medical care will be delivered and paid for. In recent years, we've observed the emergence of megabusiness movements that engulfed smaller independent chattel industries. Witness the demise of the small family farms of the 1950s and 1960s. The entire food supply of the nation was once controlled by proud, independent farmers; farmers so independent that they found themselves unable to organize effectively to compete with the deep pockets of agribusiness. Now the ever shrinking number of independents has to struggle to barely maintain what they have. Megabusiness interests have since discovered the enormous cash flow and the potential cash cow to be milked in the delivery of health care. Witness how those same interests that brought us the mergers and acquisitions of the 1970s and the savings and loan scandals of the 1980s are now positioning themselves to bring us the health care of the 1990s and into the next century. Is it possible that this enormous cash cow has eluded the attention of the organized crime syndicates? The future should provide some juicy scandals, considering the hundreds of millions of dollars in annual profits that some of the megamanaged care organizations are awash in.

So who will control the way these dollars flow? The theoreticians of managed care have long since recognized that whoever controls the doctors and the decisions we make will in fact control the dollars. Many have since reinvented the "golden rule"—you know; "he who controls the gold, makes the rules." There is much coercion going on in the marketplace of medicine and unfortunately too many of the business leaders who control the gold are really not in touch with the doctors who are laboring on the line to make the system work. Most people prefer to deal with those things they best understand. The language of the managed care industry is that of marketing, accounting, manufacturing, and distribution. In fact the patient is no longer even the "client"—now the payor is the client and the patient has become the "work product," a "covered life," to be calculated in stock earnings multiples and bartered in mergers and acquisitions, like pork belly futures.

Again, whoever controls the doctors and the decisions we make will control the cash flow. Yet the question hardly ever asked is "what do the doctors really want?" Some might fear and others likely couldn't care about the answer to this question. But in this answer may lie important clues as to which systems in the future are likely to succeed and which may be doomed to fail. Senator Paul Tsongas, during last year's great debate on health-care reform, remarked that trying to construct a health-care system without taking into account the important interests of physicians would be like trying to construct a house

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THEODORE ZANKER, M.D., past president, Connecticut State Medical Society, psychiatrist, New Haven. Address presented to Connecticut Health Lawyers Association Symposium, 9 June 1995.

with forty thousand termites. So what do the doctors want? Certainly, considering the hours we work, the responsibilities and the personal sacrifice, we'd like to experience economic comfort and security, but I don't know of any doctors yet who are moonlighting by driving taxis, though I've heard some stories about southern California. Clearly most of us entered medicine with a desire to heal, to make a difference, to be compassionate, and with temperaments best described as inquisitive, independent, and self-reliant. We trained to do science and in a bedside manner, and we are unfortunately not so well suited to deal patiently with the unending hassles and paperwork of the bean counters and the minions who report to them. But if you want to know what we really care about—*I mean what we feel passionately about* and worry most about, it's protecting our patients. "Above all, do no harm"—the centerpiece of our ethics. We worry about this in all our calculations, when things don't seem to be going right and especially in recent times when we've felt we were being asked to compromise care for financial expediency. Few things stir the stomach acids like a fight with a managed-care reviewer over the welfare of a patient.

The *Journal of the American Medical Association* often reprints articles from 50 and 100 years ago. They are both amusing and revealing. A recent one bemoaned the low compensation and the distracting hassles—I guess part of our legacy—history repeats itself. But if you follow the recent key political campaigns of organized medicine; the "Patient Protection Act," "Health Access America," and our own "Health Access Connecticut" program, it becomes clear that the one place we seem to be willing to stand and fight is in the area of protecting patients' rights—the right to choose your own doctor, the right to affordable treatment, and the right to know your rights.

In my role as President of the Connecticut State Medical Society this past year, I've been privileged to travel around the state, the region, and nationally, talking with patients, colleagues, the media, and state and national legislative leaders. Many of you know how difficult it is to get an accurate assessment of controversial issues from the media. Their advertising revenues depend on the numbers of customers and their interest is more often in controversy than in harmony. Witness the recent reports of the man in Florida who reportedly had the wrong leg amputated. The information was available that he was in fact supposed to have both legs amputated and there was a genuine misunderstanding over which leg was supposed to be done first. How many of you learned that from the juicy media stories? Would the media publicize several reliable polls that report patients and the public at large would prefer to have physicians making the decisions that shape how health care will be delivered? This certainly is not the desire of the business community, which is draining literally multibillions each year out of the health-care delivery system and into bottom-line corporate profits. Ross Perot talked of the sucking sound of American jobs moving south of the border. That sound is a whisper compared to the sound of money being sucked out of the health-care system and into corporate coffers. They claim they are making the system more financially efficient, but if you are seeing these savings translated into significantly lower premiums or a greater number of available services, then I would have to ask you what you've been smoking lately.

In my view, the key problems facing medicine today—the key problems threatening health care today, relate to the zeal with which business is attacking patient care. Those who would choose to oversee how physicians practice have literally no one responsible to oversee how they practice. They would have you believe that they have very carefully thought out criteria for their decisions, such as in credentialling or in determining medical necessity for care. I'm involved in credentialling and I can tell you it ain't anything like you're being led to believe. The real credentialling hurdle—the one which separates competence from incompetence—was around long before managed care. It's called medical licensing and board certification.

A few years ago, I was appointed by the State Insurance Commissioner to lead a three-physician panel to review the practices of MCC in Connecticut—a large national managed-care organization at that time, operating in over 40 cities with millions of covered lives. There had been an exceptionally large number of complaints of abuse by patients. The commissioner was obviously a patient advocate (as a footnote, rare for commissioners). As you know, these companies are usually secretive about their decision-making processes, which they consider proprietary. We were given complete access to their charts and documents and we each spent about half-time for about six months on this project, publishing a 250-page report which is still quoted. As far as we knew this was a rare distinction and nationally, the first such clinical oversight of a managed-care company. Their reviews in the past had really been more financial and housekeeping audits. These people were making life and death decisions—for one example, doctors wanted to hospitalize an acutely suicidal woman. The managed-care reviewer tried to talk her into postponing her admission for three days because it was a Friday afternoon and the reviewer felt she wouldn't get enough active treatment over the weekend. This really happened! I can tell you that when the reviewers themselves were being reviewed, they found it a very painful experience, particularly when we opened charts and found them extremely sparse and arbitrary. It certainly influenced their behavior for a short period of time until the spotlight was off their practices.

There is much interest today about how physicians may restructure practice patterns—horizontal integration, vertical integration, segmentation, capitation, and carveouts. These are areas you already know much about and I will try to limit my remarks to a more general physician perspective. I don't know how horizontal integration will play to New England temperament and independence. I personally favor more experimentation in this area and many doctors are talking about this, but I also wonder how they will move when the time arrives actually to sign contracts, especially if they don't yet feel pushed. I do know that most of us worry that once we accept capitation and the shifting of risk to us as providers, the pressure about overutilization will diminish, to be followed by corporate scrutiny over whether patients have enough access to come when they please (such as measured by the new patient satisfaction survey). I'm already seeing these trends in my role as a reviewer for CHAMPUS. Doctors who are now willing to spend much time with patients taking careful histories, in part because they are being compensated for this time, may under pressure find themselves taking shortcuts, to patient disadvantage. I know that some of my attorney friends are also starting to run into capitated contracts—they're usually called fixed fees I think. I'm sure you're experiencing similar concerns.

What's all this push by doctors for antitrust relief? It certainly was an interesting year in Connecticut. We found our state medical society, supported by our state attorney general facing an opposition alliance of CBIA, insurers, and managed-care companies. It ain't over. *We'll be back.* ERISA reform is badly needed. Interestingly, the Fortune 1000 firms seem for the most part to be behaving responsibly, at least they were before this recent managed-care hysteria. The real villains seem to be the smaller companies which are thinly capitalized and looking to cut every benefit they can, in order to cut expenses. There is a growing national coalition, currently about 50 organizations, including the heart association, the cancer society, and so on. They will be launching a national campaign to set a reasonable floor for medical benefits in ERISA programs. The larger players may choose to go along voluntarily rather than risk Congress really opening ERISA up, including to the states which would like to tax ERISA. Again, our interest in these reforms is in leveling the playing field so that doctors can be in a stronger position to protect patients.

I can go on with many interesting stories of the abuses by business interests of patients' rights, but we're restrained by time. I would like to tell you some of the inside story though, of a legislative fight which was just concluded. We call it "any qualified provider." Now people think that most doctors are just foaming at the mouth to get into every health plan they can, no matter how low the fees. This may be true for some. I hear of cases, again in southern California, where doctors are signing up for fees, literally below their own overhead, for fear of being locked out of the market. I for one read my income tax returns and I am very reluctant to sign onto a plan that pays $20 an hour over my overhead. Like most of my colleagues, I already see some Medicaid patients at a loss and several Medicare patients for what in fact is close to my overhead. So why do we want to join some of these plans? Usually because long-term patients have been involuntarily switched to these Plans and we see that pleading look in their eye or because long-time referral sources ask us to do it to assist in the care of some of their patients. It would be laughable if it weren't so serious—last year during the Clinton health-care deliberations, when it looked like there would be limited numbers of insurance providers in each purchasing area, the managed-care industry raised pure hell about how this would interfere with a free marketplace and free choice—do you remember? They were in effect arguing for an "any willing insurance provider." Now look at them. They've gone nuts over this same issue in Connecticut regarding any qualified care provider. They saturated their customers with fear brochures, which I can only characterize politely as "departing from the facts." They make claims that with fewer doctors, they can better control quality—it's a joke. They can't even control the quality with which they process claims. Most doctors will tell you that this is a transparent ruse for controlling practice economics. Providers are being decredentialled without explanations, not infrequently as punishment for disagreeing and fighting for a patient's treatment. I encouraged one colleague not to accept "no explanation," and when she finally got a clear answer, it turned out to be a clerical error. The companies say it costs too much money to credential doctors—doctors can help to pay for the costs. They tell the public that, if passed, premiums will go up by 35% but they never show their figures. The actuarial profession refers to the "WAG" factor in some of their calculations—by this they mean "wild assed guess," but at least that's an honest try. For most doctors, joining the more abusive plans is sort of like asking Pharaoh to let you sign up to help build the temples at the prevailing labor rates and with the usual understanding about supervision. But we pushed for this law because we believe that patients should have the right to choose their doctors. And we formed alliances with other providers. And we went directly to patients—and over 6,000 sent cards to their legislators who now began to hear our side of the argument and to sway. The bill wasn't reported out of committee due to intense pressure—it almost was, by a tie vote. The insurance lobby heard that we might bring it to the floor as an amendment to another bill. Several bills were held up for fear that would be the one with the amendment. Laughably, some legislators who wanted to kill different bills passed rumors that those were the bills earmarked for the amendment. And finally, some key legislators who were leaning toward passage were cornered by industry executives with threats that if they voted for it, they would find insurance industry jobs pulled from their districts and they would be blamed. I tell you this with authority. These are the people who claim to have the moral imperative to lead the restructuring of health care.

For these reasons, I'm honored that you would invite a physician leader to address you today. Many of your group are in fact the movers and shakers in health-care restructuring in Connecticut. You certainly write and influence many of the laws. My plea to you is that we endeavor to come closer together to protect patients. You are the patients. Your children and families are the patients. Would you rather have these decisions made by people wielding stethoscopes or calculators? You want to know how medicine will be practiced in the future. Together, we have the ability, the potential constructively to influence that structure. Let us endeavor to collaborate to make it so. Thank you.

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COMMENTARY

The Trouble With Managed Care

DANIEL M. GRAY, ESQ. AND HARRY D. LEWIS, ESQ.

THE massive consolidation and restructuring of the American health-care industry is rapidly changing the economics of medical practice and hospital operations. Health care "reform," as practiced in the private sector, is causing one of the largest transfers of wealth in American history from private physicians and hospitals to "managed care" HMOs and similar large for-profit corporations.

As the "deep pocket" financial resources in the health-care industry shift from private physicians and hospitals to HMOs and other "managed care" organizations, physicians and hospitals are finding it increasingly difficult, and ultimately impossible, to fund malpractice liabilities, medical training programs which supply future doctors and medical staff, and medical research facilities which generate advances in medical science and technology (all part of the medical infrastructure in this country).

This economic crisis which threatens physicians and hospitals is exacerbated by the "free ride" extracted by network-model HMOs at the expense of physicians, nurses, hospitals, and the medical infrastructure essential for the continuance of quality health care.

Network-model HMOs rely upon their market power (caused by their control over large numbers of subscribers) to force "lowball" capitation arrangements upon private physicians and hospitals, in which they must provide a wide range of health services without regard to the frequency or degree of actual utilization of medical services by subscribers, in exchange for a severely reduced, fixed, prepaid "per capita" compensation.

These network-model HMOs have stated publicly that it is "legal" for them to reap the lucrative financial benefits generated by subscription payments, while unfairly dumping the enormous financial risks of providing unlimited subscriber coverage ("risk sharing"), and the financial burdens caused by expensive professional liability insurance, repayment of medical student loans, and underwriting the costs of the medical infrastructure essential to ensuring the quality of medical care into the future, on the backs of private physicians and hospitals. For example, funding of medical malpractice insurance coverage remains the responsibility of private physicians and hospitals premised upon the antiquated notion embedded in law that they remain the sole "deep pockets" who can compensate malpractice victims. In the brave new world of HMO medicine, this is no longer true, but HMOs profit from this legal anachronism.

The catastrophic consequences for the quality of medical care over the next decade of permitting these network-model HMOs to "skim the cream" of subscriber dollars while unfairly palming off the insurance risks of unlimited medical care for the subscriber pool on the providers, all without paying any of the expenses of medical malpractice insurance coverage, or of the medical infrastructure costs, are manifest.

With traditional sources of funding eliminated or severely reduced, teaching hospitals are cutting residency training programs, medical research, and staff. The devas-

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tating impact upon the long-term quality of medical care due to the severe curtailment of these programs is clear.

The grossly unfair separation of financial benefit from financial burden invented by network-model HMOs enables them to price their subscription rates artificially low as compared to the actual costs of providing quality medical care. Under current law, these organizations do not have to fund quality medical and residency training, medical malpractice insurance coverage, and medical research. Thus, short-term profits for the HMOs are created at the cost of an alarming deterioration of medical care into the future. These short-term profits, which ought to have been invested in the medical infrastructure, are instead enriching Wall Street speculators.

In addition, this separation of financial benefit and burden is a type of unfair competition, because private physicians and hospitals carrying the huge fixed overheads (which network-model HMOs evade through clever contractual arrangements) cannot price their services at or below the rates of network-model HMOs, and also cover their overhead.

Because the network-model HMO has no financial or legal responsibility for ensuring future quality or continuity in the provision of quality medical care, and the existing medical infrastructure traditionally has financed medical training and research as part of the "fee for service," the easiest initial cost-cutting strategy for teaching hospitals desperate to survive is to jettison their costly medical training and research facilities to stay competitive with institutions that do not carry such overhead. The economic incentive is to sacrifice future medical training and research programs to "lowest common denominator" competition.

As long as the current pool of independent, highly trained medical professionals and hospitals (which are the products of expensive medical training and research financed under the old system) remains available to provide services for network-model HMOs, those HMOs can collect the windfall profits gained by failing to fund long-term medical training and research (which are long-term human capital costs essential to the future quality of medical care). In the short term, their subscribers may notice little difference in the quality of medical care they receive.

Eventually, however, the current generation of medical professionals and hospitals will be financially exhausted by the inevitable drag of high overheads measured against low incomes, and will die, retire, or be forced out of business. Failure to fund long-term medical training and research programs ensures that no new generation of highly trained medical professionals will be ready to replace them.

Without a pool of inexpensive and high quality medical talent and hospitals upon which to draw, network-model HMOs will not provide high quality medical services to their subscribers, and eventually will collapse as subscribers abandon them, leaving a ruined medical infrastructure, a dearth of highly trained medical professionals, and a monumental mess for government to clean up.

This wholesale stripdown of the medical infrastructure to generate short-term profits for speculators is reminiscent of the leveraged buy-out (LBO) craze of the 1980s, with its focus on short-term gain at the expense of long-term continuity and quality. The medical system "Cadillac" is in the managed-care "chop shop," the hubcaps and fenders are gone, and once the frame and the engine have been dismantled, American leadership in medicine will be a thing of the past.

Draconian cuts are mandated by the distorted economics of the present-day health-care marketplace, which drive all providers to the lowest common denominator in quality. Substantial funding of high quality medical training and research programs is essential to the well-being of current and future generations.

Finally, medical decision-making is falling under the control of third-party payers concerned primarily about cost cutting. In many instances, this creates a conflict of interest between the third-party payers (who want to reduce costs) and patients (whose interests lie in receiving the best possible medical care, regardless of cost). This substitution of the "veterinary" ethic (in which the budget of the third-party payer controls the quality and extent of veterinary care dispensed to the pet) for the "medical" ethic (in which the healing of the patient is the primary ethical concern of the physician, regardless of cost) ought to be a matter of grave concern to physicians. Sadly, it is seldom mentioned.

Physicians are being forcibly subsumed into the culture of the third-party payers. If nothing is done, they soon will lose the independence to speak for the well-being of their patients, regardless of cost. And patients will lose the protection of independent physicians who speak for the patients' interests in medical decision making.

Only legislative action can restore a level playing field to the health-care marketplace, and prevent wholesale meltdown of the existing medical infrastructure.

Legislative proposals can be piecemeal or comprehensive. At a minimum, they should include:

1. End the artificial and discriminatory fragmentation and segmentation of the patient population into "healthy and insurable" and "unhealthy and uninsurable" segments by third-party payers ("cherry picking"), and impose statewide "community-based rating."

2. Eliminate the "cost control for profit" system implemented by the third-party payers and their consultants in which they set prices to be paid to providers *in secret*; and instead place sole authority to regulate costs in a publicly administered Health Care Cost Control Council, which can set rates *in public* with input from the state medical society.

3. Look closely at tax-based, single-payer systems, with *primary emphasis* on restoring autonomy to physicians and patients (Medicare is one example). Single payer may not be our first choice, but it is a useful tool to explore in restoring equilibrium to the marketplace, reigning in the excesses of third-party payers (whose control over physicians will be severely limited by a single-payer system), and restoring much more autonomy to physicians in medical decision making. The point is rapidly approaching at which "single payer" may be the *only* choice available to the medical profession, short of surrendering all autonomy to insurance bureaucrats.

4. Develop a systematic program of "physician initiated" cost controls. Allocation and use of medical technology must be addressed on a systematic, statewide basis to get the necessary efficiencies and cost savings in the system. If rationing must occur, better it be physicians who are allocating the resources, rather than third parties. One component of such a program may be reimplementation of charitable clinic-based free-treatment programs for the poor, such as those undertaken by the profession for many years. To retain the moral high ground, adequate medical care for the poor and reasonably priced medical care for the middle class must comprise key components of any cost-control program.

5. Implement mandatory "blue ribbon" screening panels for medical malpractice claims, including equal numbers of both impartial physicians and lawyers before malpractice litigation can be filed. The panel's findings could be admitted into evidence, and plaintiffs and their attorneys who lose after receiving an adverse finding from the panel forced to pay attorney's fees and costs of the prevailing defendant.

6. Implement provisions forcing network-model HMOs to fund medical malpractice insurance costs for physicians and hospitals proportionate to the number of subscribers cared for by those institutions. Linking legal and financial liability for malpractice committed by providers under contract with HMOs will put the brakes on the HMOs' rush to cut costs without calculating the impact upon the standard of medical care received. Requiring "standard of care"-based budgeting in calculating capitation rates paid to providers, together with implementation of a mandatory "blended" capitation or fee-for-service compensation system, will help create a "floor" under those capitation rates. The problem of "lowball" capitation rates which typically undercompensate providers is becoming a serious threat to public health and safety as it causes further deterioration in the quality of medical care.

7. Implement provisions forcing managed-care corporations to fund high quality medical research and training programs at teaching hospitals to ensure that future physicians are well-trained, and that improved medicines, treatments, and surgical procedures are under constant development.

8. Implement provisions requiring HMOs to require physicians, as part of their contract, to advise patients of all medical options available to them regardless of cost, to appeal any cost-based decisions about medical treatment made by third-party payers to an independent physician designated by the patient or the patient's family, and to permit patients to pay any additional costs of medical treatment not covered by the HMO contract out-of-pocket if they so choose, reserving coverage issues for the later determination of the courts.

9. Implement provisions requiring confidential treatment for patient medical records, and eliminating the widespread trafficking in such records for profit which now is occurring.

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Editorial

The Failure of Organized Health System Reform—Now What?

Caveat Aeger—Let the Patient Beware

As regular *JAMA* readers know, we editors have been working seriously on American health system reform since at least 1987. Our early efforts emphasized volunteerism and the absolute responsibility of physicians as learned professionals to deliberately give away free care to those in need, following an 1847 American Medical Association (AMA) tenet: "To individuals in indigent circumstances, professional services should be cheerfully and freely accorded."[1]

In 1990, the AMA approved as policy "Health Access America," a 16-point, middle-of-the-road, honest effort at fixing the system's many problems.[2] In 1991, *JAMA* and the nine AMA Archives journals launched the "Caring for the Uninsured and Underinsured" campaign, spearheading a major professional effort at much-needed reform. Since then, we have published literally hundreds of articles, featuring research, analysis, history, proposals, and passionate rhetoric calling for reform and pointing the way.[3]

With the 1992 election results and the public mood, national reform was virtually inevitable in 1993—ready to be accomplished. But, because of an unfortunate mix of presidential inexperience, administrative bungling, long delays, and a virtual lockout of many in medicine who knew a great deal about reform and whose support would have been needed to implement change, the administration produced too much, too late: the H. Clinton/I. Magaziner preordained dinosaur that was dead on arrival in September 1993. No real political constituency ever developed to support the Clinton Plan. Given all the time they needed to mobilize opposition, many special interest groups did so, effectively killing any remnant of congressional support by the fall of 1994. To its considerable credit, the AMA hung in there in Washington, DC, trying to accomplish significant national reform long after the Clinton administration had bailed out—but to no avail.

What Now?

In 1994, due in no small part to its failure to achieve health reform, the electorate rejected the Democrats and elected a Republican majority in the House and Senate for the first time in 40 years—a majority that shows little understanding (scores of persons in Congress are new) and even less interest in addressing comprehensive health system reform. Some don't even seem to know what public health is.

Many conspicuous monied interests (large insurance companies, for-profit hospital chains and managed care companies, a few physician organizations, and several not-for-profit academic health centers), working in an almost unregulated state environment, are rapidly reforming the system themselves. It would seem that for the next few years, little stands in the way of massive, market-based reform. Many fortunes will be made by investors in this new health "cowboy market." Is this good or bad? Perhaps some of both, as shown in the Table.

In late 1994, we asked persons considered by THE JOURNAL to be outstanding leaders in American medicine to suggest the next steps.

Blendon and colleagues[4] at Harvard stated that our uninsured population now is around 41 million; that the federal government will not impose cost containment; that Medicare and Medicaid are in for big trouble; that growth of managed care will occur without accountability; that teaching hospitals are severely threatened; and that long-term care is an increasing problem. They opined that the public supports incrementally expanding insurance coverage and medical malpractice reform; that giving children insurance coverage may succeed; that cost containment will be difficult; and that leadership in this process is essential but hard to find.

Kenneth Shine,[5] president of the Institute of Medicine, declared that we should emphasize measuring quality, be concerned about variations in access and quality across geographic boundaries and population groups, and monitor the public health by outcomes. Jordan Cohen,[6] president of the Association of American Medical Colleges, proposed fighting for an all-payer system that supports our academic enterprises; he stated that we should deal with physician workforce problems and teach quality improvement with cost containment and that academics should "link" with the community. Seward and Todd[7] of the AMA wrote that 50 different state systems would be a nightmare, that insurance reform was imperative, that

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professional liability relief was important, and that we should emphasize quality and value for money. Philip Lee,[8] assistant secretary for health, proposed that we focus on the health of populations, strengthen the public health system, cooperate with local communities, develop better information systems, and realize responsible social policies.

Richard Davidson,[9] president of the American Hospital Association, wrote that we should create local solutions with market forces, build community networks and partnerships, and encourage capitation but retain choice. Stuart Butler,[10] of the Heritage Foundation, urged that we move away from employment-based health insurance, make payment for health insurance source tax-neutral, subsidize insurance for low-income persons, and reform insurance by excluding individual health status but allowing group ratings. Drew Altman,[11] president of the Kaiser Family Foundation, stated that the American people still rate health system reform as a high priority. He believed insurance reform can be accomplished, that we should help low-income people to get insurance, and that Employee Retirement Income Security Act (ERISA) waivers are critical for state reform.

Senator Rockefeller[12] proposed that we continue to advocate comprehensive reform and universal coverage, pursue small-group insurance reform, provide ERISA waivers, and expand coverage for children. Congressman McDermott[13] stated that incremental reform will not work, that universal coverage is critical to solving the basic problems, and that a single-payer system is still the only way to go. Finally, Emily Friedman[14] predicted that the fight will be in the states and that we should protect the medically indigent, frame the debate in clear honest terms (for a change), and above all not be silent and not give up.

	*Trend Lines in 1995**
Provide access for all to basic care	⇓
Produce real cost control	⇑
Promote continuing quality	⇔
Reduce administrative hassle and cost	⇓
Enhance disease prevention	⇑
Encourage primary care	⇑
Consider long-term care	⇓
Retain necessary patient autonomy	⇓
Retain necessary physician autonomy	⇓
Limit professional liability	⇑
Possess staying power	⇓

*Key: ⇑ improved; ⇓ harmed; and ⇔ unchanged.

Trend Directions Using Health System Parameters

In 1992, we defined 11 major medical system parameters that must be monitored for outcomes in the current system and in any reform effort and that represent appropriate reform objectives.[15] We analyzed all major national plans in 1994 and graded them, with scores ranging from 38 to 72 (perfect would have been 99—the current system scored 55).[16] I see no reason to change this grading grid now. In the absence of new federal legislation, we must continue to monitor any movement across this grid. Although very complicated to do with so many confounding factors to contend with, I believe that trend directions can be identified and monitored for all 11 points. My current reading is in the Table.

Preserving Medicine's Professionalism

Bob Dylan said, "For the times they are a-changin'." There is so much change everywhere you look. And yet, some things don't change. Among them is the professionalism of medicine.

Professions evolved over time in response to human needs, as certain essential bodies of knowledge developed, and certain activities were deemed necessary, to serve as fundamental societal good. Such activities were set aside to be performed by those few people who became learned in each evolving profession. These persons came to be called professionals and, in the course of their work, they were afforded certain privileges. These privileges include gaining the most intimate knowledge of other human beings' lives and bodies, in order to safeguard their welfare. Professionals are entrusted to use their special skills for the benefit of patients in the case of physicians, for clients in the case of lawyers, and for the laity in the case of the clergy.

Cassel has identified 10 characteristics that distinguish a learned profession(al)[17]:

- Self-governance individually and as a group;
- Service to the poor without expecting to be paid;
- Delivering quality;
- Not ripping people off;
- High level of learning;
- Autonomy of activity;
- Altruism with a touch of nobility;
- Self-sacrifice;
- Heroism when needed; and
- Ethical practice with public accountability.

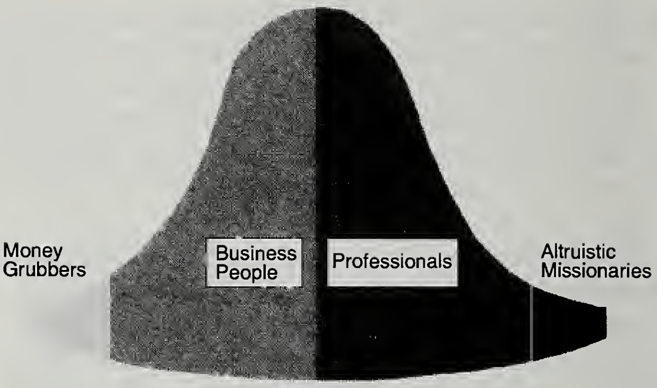
Doctors, lawyers, the clergy, and, to some extent, teachers belong to the classic learned professions, historically distinguished from trades and businesses. Although this distinction has been blurred in modern times,[18] with many other groups being called professionals, one of the characteristics of a true profession remains its special relationship with the poor. Edmund Pellegrino has stated that a fundamental difference between a business and a profession is: "At some point in the professional relationship, when a difficult decision is to be made, you can depend on the one who is in a true profession to efface his/her own self-interest.''[1] The privilege to practice a learned profession has carried with it the obligation to serve the poor without being paid. In 1987, the AMA's House of Delegates, expanding on the 1847 policy, declared: "That the AMA urge all physicians to share in the care of indigent patients."[1]

How many members of the medical profession now care for the poor in a deliberate voluntary way without payment? The best data we have indicate that the answer is about 67% and that's pretty good—a majority—but it also means that one third of our fellow physicians do not, and to me that's unacceptable of learned professionals. What percentage of their professional time do physicians who do give free care spend doing so? Data from group practices in Wisconsin indicate about 8% of physicians' time there is spent in uncompensated or discounted Medicaid care.[19]

Physicians in our society have benefited greatly from the abundant opportunities made available to them as the fruits of our plenty. I strongly believe that all doctors, as a matter of ethics and good faith, should contribute a nontrivial percentage of their total professional efforts without expectation of financial remuneration. There is a great tradition behind the giving of this gift. In the church, it is called stewardship. In law, it is called pro bono. In medicine, it is called charity. In everyday society, it is called fairness.[1]

From antiquity, medicine has been and continues to be both a business and a profession. The fundamental purpose of a business is to make money. In order to make money, a business person provides a product or service. On the other hand, the fundamental purpose of a profession is to provide a service that reflects commitment to a worthy cause that transcends self-interest. In the process of providing that service, the professional earns money. Could any of us ever really believe that a doctor's obligation to the medically indigent is no stronger than a grocer's obligation to the hungry? It is unthinkable to me that the concept of "Caveat emptor"—"Let the buyer beware"—which rules in business, should also govern medicine. Also expressed in Latin is the concept "Caveat aeger" or "Let the patient beware." Can this ever be used to define the doctor-patient relationship? In too many instances in 1995, some of our fellow physicians and some medical systems have sunk economically to exactly that sorry level, "Let the patient beware."

A millennium is defined as a period of one thousand years. In five short years we will not only enter the 21st century, we will also be entering the next millennium. I believe the 1990s represent an extremely important—even crucial—decade in the history of medicine. During this time it is our opportunity, indeed our responsibility, to take whatever steps are necessary to deliver this beloved old learned profession of ours into the next millennium as a profession and not merely as a trade or business, either running wild or tightly regulated by government like a utility. I also believe there is real doubt as to whether we will be able to do it. Powerful economic incentives are transforming the profession of medicine into a business more than ever before, and there remain massive governmental regulatory factors as well, micromanaging every aspect of a physician's professional life.



Medicine's Rocking Horse. The natural tensions that have always been there between the business and professionalism of medicine. (Artwork provided by Boon Ai Tan and reprinted from Lundberg.[17])

I believe these two components have always coexisted in medicine—business and professionalism. We created a metaphor, Medicine's Rocking Horse, to describe this tension[17] (Figure). At the extreme end of the business side are the people I call the money grubbers. At the extreme end of the professional side are the altruistic medical missionaries. I think we all know examples of each. Most are probably somewhere in the middle, in a balanced situation. Although we made progress toward emphasizing professionalism in the early 1990s, I fear we are now tipping too heavily in the direction of business. But a pendulum swings and a rocking horse rocks. It is critical that we turn this rocker around and enter the next millennium with a higher proportion of professionalism and a lower proportion allied with the business interests.

How can we make this happen? Maybe we can't. But I believe we may be able to succeed by calling this problem a problem and appealing to the fundamental good that likely continues to rest within those who were originally attracted to medicine as a service profession. We must demand that professionalism means self-governance, self-determination, and self-policing, and then do it in good faith, inside or outside government or corporations, especially in managed care environments.[20-22]

By definition, professions cannot function as interest groups because their primary interest must be in the welfare of their patient (and populations of patients), clients, or the religious laity—the people who, in aggregate as the public, gave the professionals the privileges and power they have. The primary concern of the professionals must not be the self-interest of the professional group or the corporation. If someday physicians and their organizations do become primarily self-interest groups, society—which has given them the privilege of being called professionals—will rise up and take that privilege away.

And the profession will be no more!

George D. Lundberg, M.D.

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CALL FOR PAPERS

Members of the Connecticut State Medical Society reading papers before other organizations are invited to submit their papers to the Journal for consideration. Authors preparing manuscripts for submission to *Connecticut Medicine* should consult **Information for Authors**. This is published in most issues of *Connecticut Medicine* or may be obtained from the Journal office. Adherence to the instructions will prevent delays both in acceptance and in publication.

Papers prepared on a word processor should be submitted on a diskette along with the hard copy.

Please send them to:

Robert U. Massey, M.D.
Connecticut Medicine
160 St. Ronan Street
New Haven, CT 06511

epitome

i-ʹpit-ə-mē\ *n* [L, fr. Gk *epitomē,* fr. *epitemnein* to cut shor
fr. *epi-* + *temnein* to cut — more at TOME] (1520) **1 a** :
summary of a written work **b** : a brief presentation or state
ment of something **2** : a typical or ideal example: EMBODI
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Richard Joseph) **3** : Plural — *Epit-o-mes* — A regula
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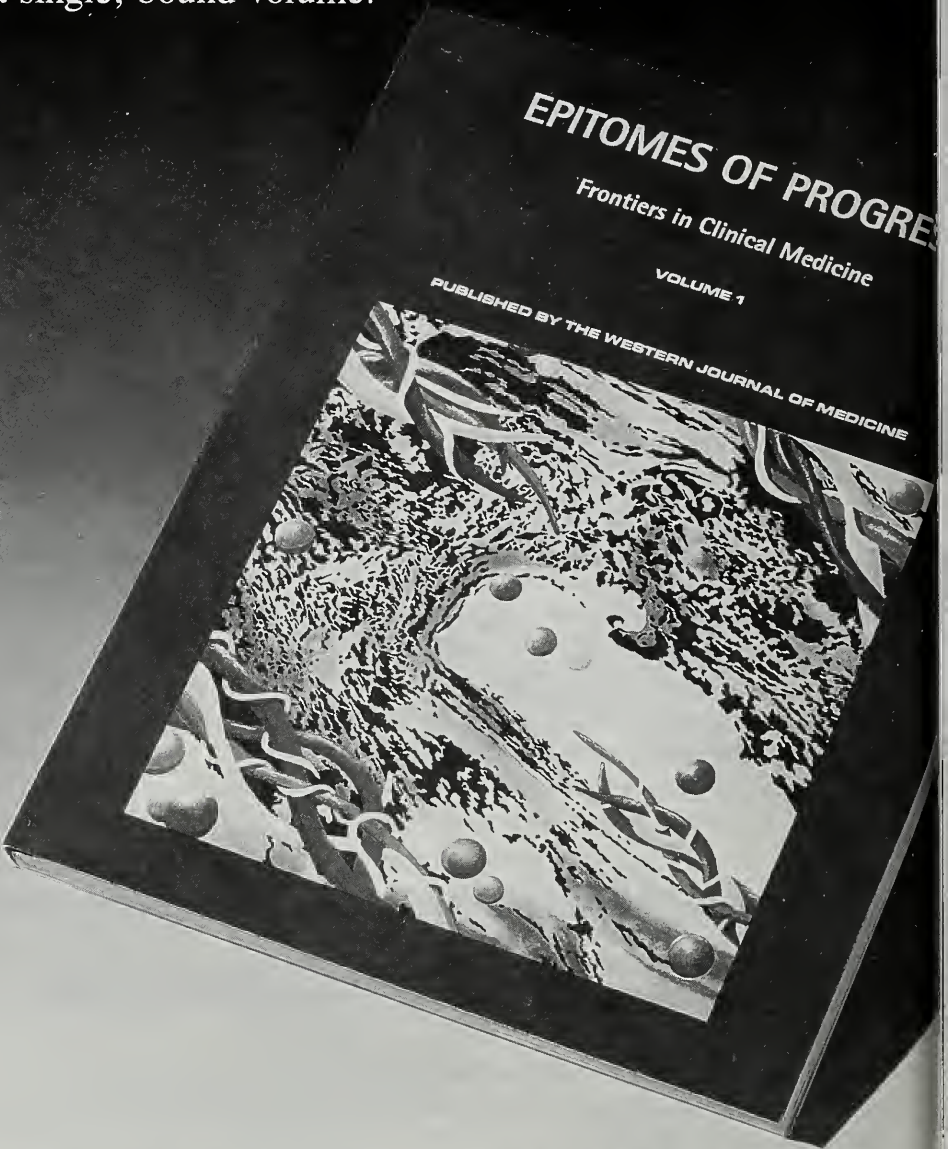
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50 Years Ago

From *The Connecticut State Medical Journal*

August 1945

The Grace-New Haven Community Hospital

ONE of the important medical centers of this country is gradually taking shape in New Haven as committees and architects perfect their plans for the hospital consolidation known as the Grace-New Haven Community Hospital.

While the name of the new institution stresses community service its scope will obviously be far wider, combining as it will not only the two old established hospitals named but the facilities and skills represented by the Yale School of Medicine together with a complete new addition to the hospital of some 450 beds capacity containing all of the facilities associated with a modern institution.

Maintaining programs for the training of both physicians and nurses as well as for the care of more than 900 patients, the new institution will not only bring the ratio of hospital beds to population served more nearly in line with the growing demand for such service but will offer exceptional opportunities for the physicians of the state to keep abreast of rapidly changing techniques in medical science.

Administered under a single board of directors representing the boards of the two parent hospitals, Grace and New Haven, the new hospital will comprise both teaching and non teaching units.

Two medical boards will supervise professional care in the hospital, one representing the Yale School of Medicine in its affiliation on the teaching wards, the other representing the staff of Grace Hospital and the private staff of New Haven Hospital in the balance of the new institution including the new building.

The New Haven Dispensary will continue its service in affiliation with the new community hospital, adding greatly to the character and scope of service to be offered, while both the Grace School of Nursing for high school graduates and the Yale School of Nursing for college graduates will offer their advantages of training and service to the new combined institution.

In addition, the intern training program carried on by Grace Hospital will be continued in the new building where some 100 beds will be reserved for ward patients.

The new building, for whose construction a $5,000,000 building fund campaign has already been launched, will be erected adjacent to New Haven Hospital in the block bounded by York, South, Park and Oak Streets, and connected with the present New Haven Hospital plant by a tunnel.

Of strikingly modern lines, the new building will rise 12 stories from its front entrance on the hillside while sloping ground will give it an additional story at the rear for receiving facilities.

Douglas Orr, of New Haven, architect of the new building, has chosen a floor plan of modified X-shape providing four wings radiating from a central core. Patients, housed in the wings, will accordingly not only receive the maximum amount of light and air but will be spared the disturbance of traffic passing their doors, while elevators, food service, linen rooms and other utilities housed in the building's central core will be grouped for efficient operation.

The plan of the tenth floor, reproduced in this issue, shows a floor typical of patient accommodations. Elevators for patients, the public and service are grouped in the central core with divided lobbies for patients and visitors. The nursing stations are each located so that they overlook two wards, while there is a glass-enclosed solarium in the front of the building.

Reprinted from the *Connecticut State Medical Journal*, August 1945.

Utility and linen rooms are located at the junction of the wards while food service, consulting rooms and a nurses' rest room are found in the central part of the building.

Patient accommodations begin on the fifth floor and run to the top floor.

The ground floor, with its service entrance in the rear, contains many of the "back of the house" departments such as housekeeping, maintenance, supplies, linen room and record storage. Plans also include a large auditorium on this floor.

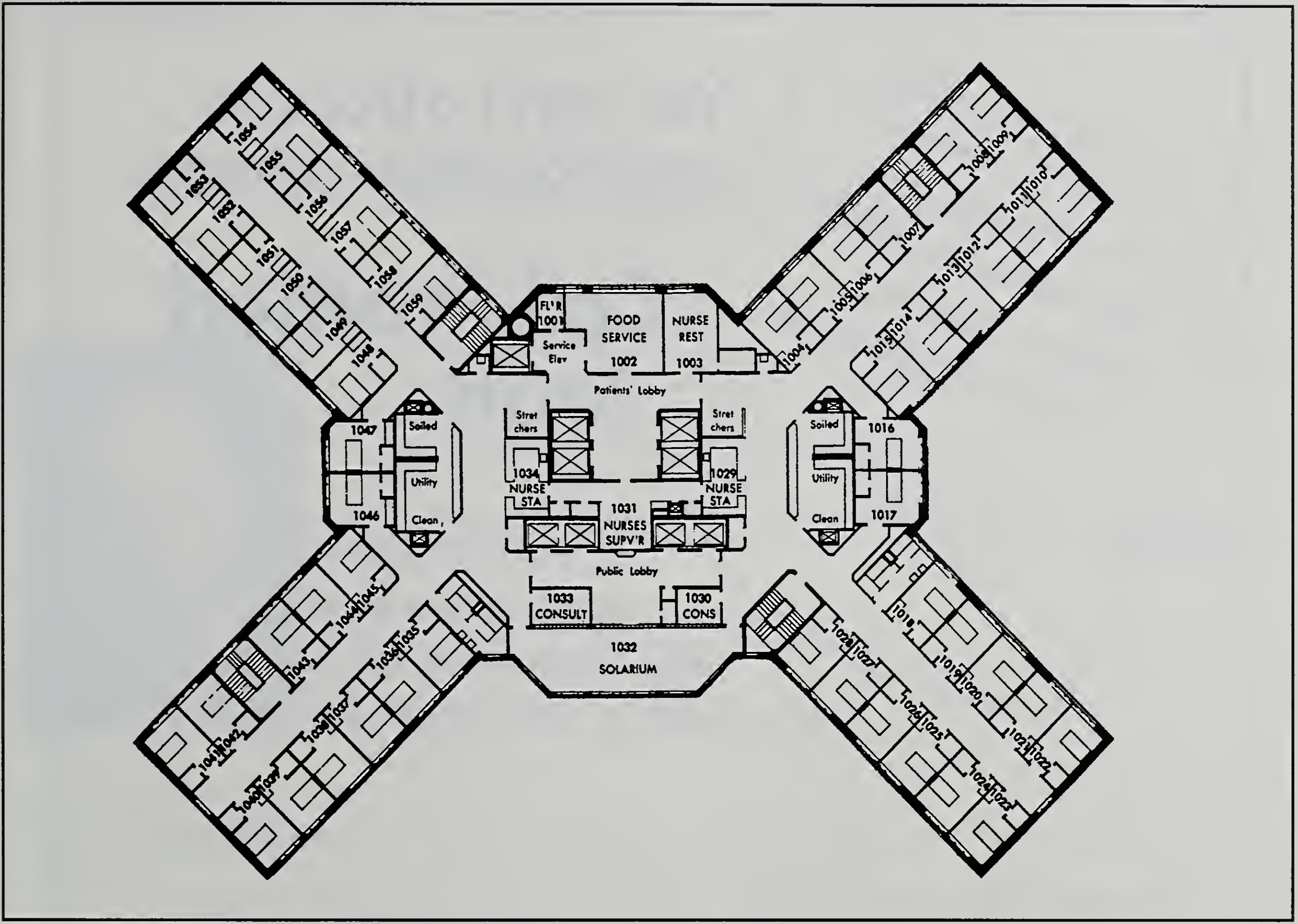
On the street floor, in addition to a commodious lobby and waiting room, are located the admitting and accounting departments, the accident room, physical therapy department, locker rooms for employees, staff suite and administrative offices.

The second floor contains the main kitchens and dining rooms as well as a snack bar and a medical staff dining room, while offices and classrooms for the nursing school and a library are also on this floor.

Roentgenology and clinical laboratories are located on the third floor, while the fourth contains the air-conditioned operating suites.

Need for additional hospital facilities in the New Haven area has been growing more and more apparent for some time. At the same time that Blue Cross has been developing an increasing demand for hospital space, New Haven's ratio of hospital beds per 1,000 of population has been well below the widely accepted standard of 4.5. The new hospital will effect a net increase of hospital beds in the community of 228, raising the number of beds in the community to 4.4 per 1,000.

Both New Haven and Grace Hospitals had for some time been considering separate measures to meet their needs for new building,—Grace to replace much of its aging plant, and New Haven to provide additional beds for private and semi-private patients. This summer, for example, the waiting list at New Haven Hospital has been running above 200, largely private patients.



The advantages of consolidation were agreed upon by the two hospitals early this winter, the necessary legislation was passed by the General Assembly, and land acquired for the building.

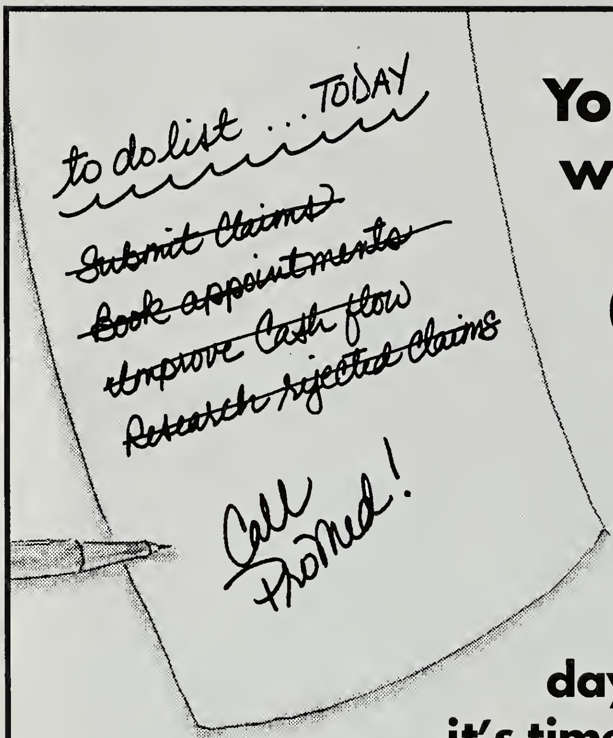
While no actual building can be done until the conclusion of the war with Japan, the campaign to raise the amount needed, $5,000,000, was launched on June 12 with a dinner at which several hundred of New Haven's leading citizens heard the Building Fund's chairman, Thomas I. S. Boak, works manager of the Winchester Repeating Arms Company, describe the entire project while representatives of Medicine, the Church and the City endorsed the plan as being of great value to the community.

Under the slogan "United for Health," representatives of the Building Fund are calling on industrial leaders whence much of the Fund's support is expected. Opportunities for the creation of enduring memorials are being offered to those whose means will permit, and early next year the Building Fund's needs will be carried directly to the public.

Among the many committees who are working to bring the new hospital into being is a large and representative Doctors' Advisory Committee whose officers are as follows: Dr. Creighton Barker, Dr. Howard S. Colwell, Dr. Theodore S. Evans, Dr. Joseph I. Linde, Dr. Grover F. Powers and Dr. Thomas H. Russell.

Today more accurate diagnostic procedures, new techniques in surgery, chemotherapy and other fields are emerging more rapidly than ever before. Many are being developed at the battlefront. Increasingly their effectiveness in saving life is dependent on the coordinated facilities and equipment and the qualified, trained staff available only in a modern hospital. For example, as the sulfa drugs, penicillin and other new discoveries are more widely employed, the physician increasingly requires that they be administered in a completely equipped hospital where skilled laboratory technicians and extensive scientific apparatus make possible the tests which are considered necessary for effective treatment of the patient.

The expansion program of the Grace-New Haven Community Hospital conservatively anticipates post war growth in demands for service and the introduction of new scientific developments as swiftly as they prove their effectiveness in the fight against disease.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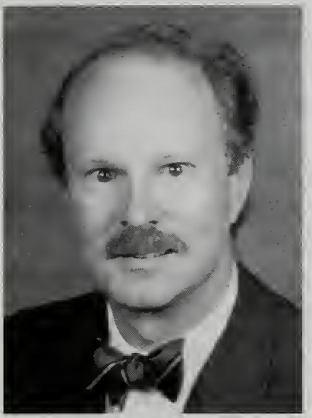

I will highlight two of the more important events during my first months as your president. The first is my meeting with our governor, John Rowland. The second is my attendance at the annual AMA meeting in Chicago.

With the failure of national health-care reform, emphasis on state legislation becomes more important. While we have lobbied hard with members of Congress, establishing a relationship with Governor Rowland is vital. Therefore, with the help of Sullivan and LeShane, our lobbyists, and accompanied by CSMS staff, I met with the governor in early June.

The purpose of this meeting was twofold. First, we reviewed the current legislation in Hartford. "Hold harmless" has passed both houses and now awaits only his signature to be enacted. We continue our efforts for "any qualified provider," (AWP) which will become even more critical when managed care is extended to both Medicaid and Medicare. Already in Connecticut, young physicians have been locked out of the managed care market, and established practitioners have been summarily "deselected." I then reminded the governor of his campaign pledge to support AWP, which he made before our Council last summer, and of the substantial contribution made by COMPAC for his election. I noted that the managed care industry is largely unregulated, and notwithstanding the antiregulatory fervor of today's politics, both patient and physician need some governmental protection from profit-driven third-party payors. Finally, despite its defeat in committee, antitrust reform remains critical to the state's physicians, and we hope he will join Attorney General Blumenthal in supporting our views.

The second purpose of the meeting was to volunteer our services to his administration. We discussed ways in which CSMS may assist Stephen Harriman, his new commissioner of health, and Joyce Thomas, head of the department of Social Services and responsible for Medicaid reform (I will be meeting with both Mr. Harriman and Ms. Thomas in the weeks ahead). Representing nearly 90% of the state's physicians, I stressed that CSMS is eager to contribute its expertise and resources to improve the delivery of health care in our state, and that I am personally available to facilitate the process.

Our message was heard. I believe Mr. Rowland recognizes the legitimacy of our requests and that we are not simply arguing "pocketbook" issues. I hope to keep this channel of communication open and meet again with him in the future.

I also attended the annual AMA meeting in Chicago in late June. You will be reading a full report by Dr. Kamens, head of our AMA delegation. But I would like to summarize several important points.

Health-care reform continues, but the issues are more specific than a global health plan. Medicare reform is both inevitable and critical. The AMA's goal is a shift towards privatization and a pluralistic system which would include fee-for-service, managed care, medical IRAs, and vouchers to opt out of Medicare entirely. Other recommendations include income-based premium hikes to minimize further cuts in provider reimbursement; continued funding of graduate medical education and research; and antitrust reform. Unlike Clinton, Republican leadership is actively seeking AMA input into health-care reform. In fact, speaking by satellite, House Speaker Newt Gingrich expressed support and general agreement with the AMA's proposals.

Managed care issues were also addressed. The AMA continues to emphasize choice for both patient and physician with a revised Patient Protection Act. Numerous resolutions were aimed at increasing the accountability of managed care organizations, including open disclosure of medical loss ratios, provider compensation incentives, and credentialing procedures. These proposals are also being well received on Capitol Hill.

Other issues discussed by the House of Delegates include a strong stand against the "criminalization" of medical decision-making, strict regulation of nurse practioners and other "physician extenders," additional antitobacco measures, and numerous public health measures (highway safety, domestic violence, graduate medical education, etc.). As usual, the Connecticut delegation worked hard for passage of these and other measures.

CSMS will remain active during the summer months. Work on a consumers' guide to managed care, gearing up of our speakers' bureau, and revision of our state proposal for health-care reform are all in progress. Have a good summer.

Dickerman Hollister, Jr., M.D.
President

REFLECTIONS ON MEDICINE

The Passing of Sunday Peace

ROBERT U. MASSEY, M.D.

> Six days shalt thou labor and do all thy work: But the seventh is the Sabbath of the LORD thy God: *in it* thou shalt not do any work,...
>
> (Exodus xx: 9, 10.)
>
> It being contrary to the law and disagreeable to the People of this State (Connecticut) to travel on the Sabbath day—and my horses, after passing through such intolerable roads, wanting rest, I stayed at Perkin's tavern....
>
> (The Diary of George Washington, 8 November 1789.)

IN these latter days of the 20th century, an obligatory day of rest, like so many other ancient and beneficent customs, has faded from common memory. Growing up in Detroit, in a family that prided itself on its modern ideas, even going so far as to discuss Darwin at Sunday dinner to shock my fundamentalist aunt, I was never allowed to forget that Sunday was the Sabbath. No movies, no card playing, and no unnecessary work. We knew some Seventh Day Adventists who cut their grass on Sunday, and I might walk to a nearby delicatessen for cold cuts and rye bread for Sunday supper. But on that day I never had to mow the lawn or dig dandelions or put up the storm windows. Even homework was discouraged: "Surely you could have done that yesterday or Friday!" Assigned reading was not really work.

Sunday afternoon was for driving into the country or to Belle Isle or taking the ferry to Bob-Lo. No stores were open, except Sanders' Ice Cream where you could get a sundae, a dish they had invented for the after church crowd on Sunday! If the day was rainy, we listened to the radio, light classical music usually, and my father and I played chess, but never a card game. In the evening we all sat in the study and listened to the Ford Sunday Evening Hour, Jack Benny, and George Allen. Or my mother played the piano and we sang from some book called "Favorite Tunes." Sunday felt different from the other six days, entirely separate, and the city too had a peaceable look.

The Jews and later the Christians introduced the Mediterranean world to the rule of one day of rest out of seven, for everyone, even slaves. For the Jews it was *shabbat*, for the Christians, the Lord's day. After the conversion of the Roman Empire, Constantine in 321 A.D. declared Sunday a day of rest, a decree later repeated in the Code of Justinian. For the Jews the origin of *shabbat* observance is lost in antiquity, but was formalized after the Exile. Few institutions have relieved the lot of humankind more than this one, condemned, or blessed, as we are to labor for our daily bread. In an agrarian society it was a blessing to feel good about not working on this one day in seven. Sabbath signified that there was more to life than work.

Something of the Sabbath peace prevailed even in hospitals. As a house officer I recall the relief that followed the Saturday discharges, the sense of time stretching out until Sunday evening when admissions would begin to pile in. Sunday mornings were quiet, rounds later and leisurely, time to catch up on charts, time to spend with patients, time to read the *New England Journal,* bring your wife in for Sunday dinner in the residents' dining room, or just take a nap. Hospital weekends still are slower, but, I suspect, not for long. Our new masters, the HMOs and insurance giants, will see to that. Pausing, even a little, for a Sabbath rest cuts into profits.

The retail world has shown how profitable it is to keep going seven days a week, sometimes 24 hours a day. Both parents, or the only parent, may be working on the one day the children are at home, or if they are not working, they are out shopping or pursuing some solitary recreation. Seeing the full parking lots in the mall on Sundays, the crowds wandering to and fro seduced into buying and spending in these unlovely places, evokes a longing for that old, occasionally tedious, day of rest, a day with family, recurring every seven days and sustained by convention, or religion, and sometimes even by law.

The Blue Laws have had a bad press, and politically their return is unlikely, probably unconstitutional. Perhaps they could be reintroduced as a public health measure! Millennia ago the Sabbath had been made for man, but man and the Sabbath have been remade in our enlightened times to serve mammon. The decline of Sabbath observance is further evidence that progress is a myth, and that all we experience is change, as often for the worse as for the better, maybe more often!

ROBERT U. MASSEY, M.D., Professor Emeritus, Division of Humanistic Studies, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington.

This Month's Reading in Review

TIMOTHY B. NORBECK

"Every reputable study has shown that there is no magic for Medicare in managed care. Better payment strategies and monitoring processes will permit us to save some money, but not nearly of the magnitude contemplated in the Congressional budget resolutions. Those employers who have saved the most on their health costs have done so by reducing benefits and taking away the choice of provider from enrollees."

Bruce C. Vladeck, Administrator, HCFA, in a letter to the editor of the *New York Times* (13 June 1995)

"Yes, this bill would make it easier for doctors to join a network, but that is as much in the best interests of patients as of doctors. Qualified providers should not find themselves arbitrarily shut out of networks at the same time that consumers are demanding quality and choice in health-care."

A chairwoman of the managed-care committee, Alliance for the Mentally Ill of New York State, in a letter to the *New York Times* (6 July 1995)

"We believe that legislators should make laws, insurance companies should provide insurance, and that doctors should make clinical decisions. While I think the Bradley bill is quite laudable, I think he's a bit out of his element."

AMA Trustee Dr. John C. Nelson on Senator Bill Bradley's proposal to regulate postpartum hospital stays. *Philadelphia Inquirer* (28 June 1995)

The Associated Press reported (29 June) that an independent survey, sponsored by the Robert Wood Johnson Foundation, indicates that patients in managed-care plans had more complaints about their doctors than their counterparts in fee-for-service plans.... The poll found that sick people had to wait longer for appointments and had more difficulty arranging to see specialists.

Hartford Courant (6 July 1995)

FHP International founder Robert Gumbiner resigned from the company in late June, "saying the HMO was focused more on profits than quality".... Gumbiner said that "you have to focus on service and quality not just shareholder return."

Orange County Register (28 June 1995)

Approximately one third of U.S. community hospitals found their lengths of stay for elderly patients averaged 7.3 days in January 1995 compared to 8.1 days in January 1994.... This is the largest drop in a decade.

Health Line (24 June 1995)

Love may be blind, but sex can be blinding—says an article in the June *Archives of Ophthalmology*, published by the AMA.... The article reports on six patients who suffered sudden vision loss after "rigorous sexual activity".... While often attributed to severe coughing, vomiting, or strenuous exercise, the condition known as "valsalva retinopathy" was traced to sexual activity by the five men and one woman cited in the article....The condition is rare and usually clears up on its own.

USA Today (20 June 1995)

A University of Colorado study of Denver walk-in clinics and hospital ERs found that 12% of women were seeking treatment for domestic violence related injuries.... Of the 833 women surveyed, 54.2% said they had experienced domestic violence at some time.

Washington Post (20 June 1995)

A new report issued by the National Center for Health Statistics found that persons between the ages of 25 and 64 who did not graduate from high school have a death rate two times higher than persons who attended college for at least one year.

Washington Post (26 June 1995)

A new study cited by the *New England Journal of Medicine* shows that nearly one fifth of people dying accidentally in New York City have cocaine in their bodies.... Even more, 27%, have chemical traces of recent use.... Many dead users are murder victims, others have committed suicide, and just one third have overdosed.

USA Today (29 June 1995)

Only in America: Among the questions on the City of Chicago High School Proficiency Exam developed by a first-year math teacher: "Raoul is in prison for six years for murder. He got $10,000 for the hit. If his common-law wife is spending $100 a month, how much money will be left when he gets out of prison and how many years will he get for killing the bitch that spent his money?"

NOTE: Parents want the teacher fired; Board of Education is considering that option; the teacher has offered to quit.

USA Today (May 1995)

TIMOTHY B. NORBECK, Executive Director, Connecticut State Medical Society.

Letter to the Editor

Letters to the Editor are considered for publication (subject to editing and abridgement), provided that they are submitted in duplicate, signed by all authors, typewritten in double spacing, and do not exceed 1-1/2 pages of text (excluding references). They should not duplicate similar material being submitted or published elsewhere. Letters referring to a recent Journal article should be received within six weeks of the article's publication.

Credentialing and Being Fair With MDs

To the Editor: The good news: *Consumer Reports,* February 1995, in an article entitled "How Is Your Doctor Treating You?," observed that "During last year's debate on health-care reform, one theme was clear: No matter what else changes, Americans want free rein to choose their own doctors. The doctor-patient relationship is probably the single important dimension of medical care...."

However, a bill introduced into the Connecticut General Assembly again in 1995 to allow "any willing provider" (presumedly the patient's physician) to render necessary care, was opposed by the insurance lobby. Insurance companies suck 20% to 25% of medical-care costs "off the top" before the bills are paid. For comparison, insurance companies bid to administer Medicare, and are paid about 10%; some Blue Shield plans charge as low as 6% for administration.

The methods of pruning the provider list are totally lacking in reason and sensitivity; it is as if the HMO or insurance company were discharging an employee who was seen putting paper clips in his pocket.

The 21 November 1994 issue of *Medical Economics* contains an article, "Nothing about you will escape health plans' notice." The article begins, "You didn't go to Yale? Some HMOs in Connecticut might find that reason enough to reject you."

The article ends, "According to health plans, contracted physicians have access to most of the information in their credential files, but rarely ask to see it. When plans exclude or terminate physicians, however, that access is restricted, and they don't usually give the doctors a legal reason to obtain the information."

"If you terminate them with cause, it gives them something to challenge," notes Bill Amos. "If you drop them because they don't meet your business needs anymore, they can't challenge your right to define your business needs." Where does the health plan get the right to break the doctor-patient relationship?

When doctors are dropped under a termination-without-cause provision, says Amos, most plans won't allow them to see their credential files. I believe this should be challenged over and over.

"Ironically," some observers claim, "the medical establishment's push for due-process and any-willing-provider laws is encouraging health plans to tighten up their credential processing."

So MDs are now in a position of being discarded by HMOs on the judgment of nonpeers, with no recourse if they have wronged us (or if false information is the cause of the exclusion, for example).

Is this exclusion reported to the NPDB (National Practitioner Data Bank)? If so, is the person who notified the Bank identified by name and institution so that if false data have been recorded, the physicians may demand removal of the information, and if it appears maliciously motivated, both monetary and punitive damage awards may be sought?

The February 1995 issue of *CSMS Action* notes "ERISA Erases New Managed Care Law," as follows:

> In December, CT Superior Court Judge Jon C. Blue ruled in favor of CIGNA HealthCare of Connecticut, effectively striking down a new law that required health plans to state the standards they use for selecting and terminating physicians (An Act Concerning Managed Care).
>
> Nine physicians filed suit over CIGNAs termination of its agreement with ProCare IPA. The physicians' patients also filed suit, arguing that they were not informed when they chose the CIGNA plan that their physician could be terminated at any time.
>
> Judge Blue said that ERISA (Employment Retirement Income Security Act) precluded him from even considering arguments by physicians and patients because it would mean illegal interference with the administration of employee benefit plans.

Where is it cast in stone that the administration of employee benefit plans supersedes the doctor-patient relationship, which is thousands of years older?

The last paragraph makes me wonder for whom the employee benefit plans are being administered; for the administrators?

The bad news: We've been had. When the Connecticut General Assembly voted down a proposed law to allow payment of "any willing provider," the doctor-patient relationship, for a huge segment of the population, has been destroyed.

The plan: As far as I can see the battle is over before it was ever joined; the only way of saving the doctor-patient relationship is a single-payor plan like the Canadian or Medicare here.

Donn Barton, M.D.

Glastonbury

The Ancient Way

Letter to the Editor: In view of the way the practice of medicine is being dictated by insurance companies' mandates, etc. I think that it is high time that the profession took back control of the practice of medicine and went back to the ancient and honorable way of dealing with the patient directly, ie, give him an itemized bill and expect him or her to pay it directly to the doctor in all cases except Medicare and Medicaid. The patient could do what he likes with the bill, but if he didn't pay it eventually we would stop treating him or her. In this way we are doing our duty, taking care of patients in a free market society. We would have a rough time for probably six months but after that the insurance companies, etc. would be irrelevant to us, and the employers would have to accept the fact that they could eliminate the middle man and save the 20%, plus the insurance paperwork, and the 20% cut in M.D. reimbursement that the insurance was not returning to physicians.

As far as I can see, there is no antitrust problem here and I would like to see the Connecticut State Medical Society and the AMA take up this proposal. The patient's bill could eventually be 35%-40% lower with no financial harm to us.

Brendan G. Magauran, M.D.
Enfield

Use of Acronyms (UOA)

Letter to the Editor: In the past several years the use of acronyms (UOA) has become more prevalent. This is noticed particularly in articles from house officers (HO) from hospitals in Connecticut (HIC), and from medical centers in California (MCIC). This necessitates much retrograde scanning (RS).

To avoid this RS, could you not therefore discourage the excessive UOA by HO from HIC and MCIC?

James F. Jones, M.D.
Brooklyn

The Editor Replies: I have tried! This is a type of jargon not limited to house officers (HO) or even to medicine. It is seen as often in other technical writing and in government and the military, less often in humanistic writing. It serves as Latin once did, to establish membership in a quasi-secret and elite group bent on guarding its arcane and powerful knowledge; it does therefore appeal most strongly to the most recently initiated. Those of us further advanced in the mysteries should continue to do battle against such obscurantism!

James Lind: Merging of *Theory* and *Practice*

Letter to the Editor: Sherman Mellinkoff's article about Dr. James Lind was of great interest. However, he did not emphasize enough a point which is implicit in the history of science. The early explorers continued to develop scurvy on their long ocean voyages, and again and again they would "accidentally" discover the treatment using oranges or certain plants. Meanwhile on shore, the learned doctors were repeatedly coming up with their theories as to the cause of scurvy. They wrote that it was due to the lack of sex, or the problems with ventilation, or spoiled food, etc. Only when Dr. Lind went to sea, was there a merging of *theory* and *practice.* This led him to the experiment of equipping one ship with oranges, and the other without, and thus confirming that oranges would prevent the development of the disease.

Another footnote to this intriguing story is that the reason the British are know as "Limeys" is that Admiral Cook on one of his trips took limes instead of oranges, and it is said that this did not prevent the scurvy, and so the name came to be used in derision.

Re: Lost Memory

I may use the concept of the interrelationship of theory and practice in responding to Debra McQuade's criticism (*Conn Med* 1995; 6:369) of my statement that children may not "instinctively" know that sexual contact with adults is bad. (*Conn Med* 1995; 3:143-6) I do recognize that children learn attitudes without direct instruction. However, in all my reading of the accounts of those who suddenly discovered their "lost memory" of abuse, I have not come across investigations of how they were so profoundly convinced that they had to "suppress" the event and develop amnesia. I believe that in the majority of cases, the "therapist" has made assumptions, rather than developed the information via practice.

Leo H. Berman, M.D.
Westport

Dr. Sherman Mellinkoff Responds: Many thanks for your kind comments upon my short article on James Lind.

I agree with you that many doctors—some of them outstanding—both before and after Dr. Lind's critical experiment in 1747 allowed theories about scurvy to cloud their interpretation of empirical observations suggesting the efficacy of fresh vegetables and fruits, especially citrus fruits. I am not aware that Dr. Lind equipped one ship with oranges and one without, although in the century preceding Dr. Lind's great work Captain James Lancaster did equip one of four ships with lemon juice, with results as one might reasonably expect. However, as you rightly

(continued on page 509)

From the Executive Director's Office

COUNCIL MEETING

Wednesday, 28 June 1995

Attendance

In addition to the Chairman, Dr. Joseph Czarsty, were Drs. Beck, Bigos, C. Czarsty, Deren, Eslami, Geary, Hollister, Kamens, Katz, Keating, McDonnell, Montegut, Mushlin, Redmond, Sadowski, Scarpa, Schwartz, Sosa, Tesoro, Timmerman, Wetstone, Watson, Wolfson, Zanker.

Also present were: Mr. Norbeck, Ms. Lindquist, Mr. Brunell, Ms. Schaffman, Ms. Norbeck, Ms. Morelli, Mr. Sullivan, Mr. Staples (all CSMS staff), Mr. Rick Fiorentino, (HCMA Staff), Mr. Michael Conway (FCMA Staff) Ms. Ann Harney (NHCMA Staff), Myron Genel, M.D., Davis Thompson, M.D.,(CSMS-IPA), David Parke, M.D., Chairman, CSMS Committee on Legislation.

Absent were: Drs. Ahamed, Bobruff, Brooks, Franklin, Freedman, Herzog, Handleman, Lesnik, Van Nostrand, Zeppieri.

Organizational Meeding

The organizational meeting of the Council for 1995-1996 was called to order by the President, Dickerman Hollister, Jr., M.D. He welcomed the old and new councilors to the meeting and asked the Councilors to introduce themselves. He then asked for nominations for Chairman and Vice-Chairman of the Council for 1995-1996. It was VOTED to elect Joseph C. Czarsty, M.D., Oakville, Chairman, and Joseph S. Sadowski, M.D., Hartford, Vice-Chairman.

Dr. Czarsty thanked the Council for its continued support and stated that he would endeavor to keep the meeting running in a businesslike fashion.

Reports of Related Organizations

CPRO: Dr. Kamens reported that CPRO has initiated a program of outreach in regard to mammography, and it has been extremely well received and has been broadcast on television in the Windham area. It is the start of what will be a cooperative effort with physicians locally and all public health areas throughout the state, giving them the data that is available, that mammography is underutilized in the Medicare population, and what can be done in reaching out to the public and getting them involved. He informed the Council that Eric B. Einstein, M.D., Chairman of the CSMS Committee on Geriatrics and Marvin Garrell, M.D., who is a delegate to the AMA from the American Geriatric Society, have become involved in a project to deal with the quality of care issues in nursing homes, and that CPRO will act as the data repository for their project. It was reported that CPRO was mentioned in an article published in the *JAMA* and has received a request from the *J Gerontology* to submit an article on the mammography project for publication.

Office of Health Care Access (OHCA): Dr. Kamens reported that this program is unfunded at the present time. He has been invited to the governor's office to meet with a health liaison group. Although he did not receive an agenda, he presumed that the meeting would be on Medicaid issues and the advisory committee to the Connecticut Data Institute. He hoped that he would have the opportunity to bring to them the concerns of physicians in regard to the managed care program, and that he would be able to have them understand that physicians should be invited to sit at the table when plans are made. He stated that although he is familiar with CSMS policies, he would be happy to receive input from any member of the Council on the subject.

Professional Credentialing Information Service (PROCIS): Dr. Kamens reported that over 500 telephone calls were received in two weeks, 193 physicians have sent in for the application form and 16 of them have already been received and are in the system. He presented Dr. Hollister with a check in the amount of $833.33 representing the interest payment and a check in the amount of $4,821.25 payment on the loan. He further reported that he had signed a subscriber agreement with New Hampshire and been invited to meet with Rhode Island and Vermont.

Committee on Allied Health: Dr. Beck reported that he happened to meet Dr. John O'Brien, the new chairman of the subject committee, and he was concerned as to what the committee should be doing. Dr. Beck, who was the former chairman of the committee, stated that he informed him that he would receive the committee's charge from CSMS and would also get matters referred to them from the Council when the occasion arose. Dr. O'Brien was concerned with several issues having to do with Workers' Compensation, ie, the inability of a family practitioner to refer a patient with back pain for tests without referral to an orthopedist or neurosurgeon. CSMS has a committee that has been working with the Workers' Compensation Commissioner on several issues and Dr. O'Brien will be advised to contact Ms. Morelli, who staffs the CSMS committee, and discuss some of the issues on which he has concerns with her. Dr. Hollister agreed to meet with Commissioner Frankl if necessary.

CSMS-IPA: Dr. David Thompson, President of the

CSMS-IPA stated that now he would be the liaison person between the two groups. He explained that the IPA is a wholly owned subsidiary of the Medical Society and is governed by a Board of Directors of physicians, representative of the counties and CSMS. The IPA operates on income received on capitation of members from the HMO. From these funds they pay for all provider services and in order to do that have to manage care. Currently the IPA receives about $64.00 per month per member to provide all nonhospital health care to the membership and are receiving bills that average about $79.00 per member, and that exhausts the withhold. Fortunately, he stated that MDHP has third party administrator arrangements with some self-insured third party payers where the withhold is not at risk, and this assures at least a partial return of the withhold to IPA members. They expect to undertake new arrangements with mental health providers, chiropractors, physical therapists, radiologists, etc. which will control utilization of these various services. He stated that there are 4,700 providers in the network and he would be receptive to any input from them and the Council on methods to control costs. There was lengthy discussion and Dr. Thompson responded to questions raised by some of the councilors.

Report of the President

Dr. Hollister reported that he met with Governor Rowland and was able to discuss the Hold Harmless Bill, which he will sign, and the Any Willing Provider Bill, which was lost. He also discussed with him the access problem that patients are having and the problem that young physicians may have being shut out of the managed care program and the selection and deselection issues for those physicians who have been in practice longer. He further stressed to the governor that he or his aides could call on CSMS as a resource on any health issues, particularly Medicaid and Managed Medicaid.

He reported that a speakers' bureau will probably be finalized by the fall and it will be both political and nonpolitical. Also a consumers' manual entitled "20 Questions: What You Should Know About Health Insurance" is in the process of being developed. He stated that the pamphlet on Health Care Reform was now dated and was going to ask Dr. Ahamed if he wished to continue as chairman of the committee that developed this pamphlet and ask them to revise the pamphlet. He informed the Council that he was planning an informal dinner for county presidents, which he felt gave them an opportunity to discuss various issues of interest at both county and state level. He attended the AMA meeting and was encouraged that physicians, legislators, and patients are now understanding the issues.

Report of the Executive Director

Mr. Norbeck reported that at the last CSMS House of Delegates meeting a member spoke to him about his concern that Any Qualified Provider legislation would not address the problem of the nonboard certified physician being excluded from health plans. It was brought out that the Group Health Association of America, the lobbyist for HMOs nationwide, conducted a survey that concluded that 70% of HMOs consider board certification very important in selecting physicians. Only professional liability history and hospital privileges rated more important. According to the AMA, 79% of all physicians are board certified. Any Qualified Provider legislation did not pass during this last legislative session, but had it passed there was leeway in that legislation for health insurers to use lack of board certification as the sole criteria for exclusion from the plan. Dr. Parke, Chairman of the CSMS Committee on Legislation, was apprised of this information, and the committee will examine ways to address this issue.

He stated that CSMS's interest in the Napoletano & Hollis *vs* Cigna deselection cases in new Britain were moving along. Plaintiffs will be filing their briefs in early July and the CSMS brief will be filed in August. CSMS will actually be filing two briefs, one for Napoletano the other on behalf of Hollis. It will take six to nine months for arguments to be heard and all indications are that the Connecticut Supreme Court will hear the case, although there are no guarantees. A very interesting new development is that the Connecticut Attorney General's office will be filing a brief on behalf of the plaintiff.

It was reported that it appears now that it is a real possibility that Medicare cuts over the next seven years will be 270 billion dollars and Medicaid cuts 180 billion dollars. A new *Wall Street Journal*-NBC poll indicated that 73% of Americans think that reducing Medicare spending by $200 billion over the next seven years would lead to cutbacks in necessary medical services for the elderly. He stated that for the first time in the history of Medicare, there will be a reduction in Medicare Part B. premiums from $46.10 to $43.70 in January 1996, unless Congress intervenes. Medicare was supposed to be a 50/50 split on premiums, but now elderly are only paying 31.5% of Part B costs and taxpayers are paying the other 68.5% of the costs. If premiums do go down to $43.70 in January, Medicare beneficiaries will save one billion dollars.

Action of the House of Delegates, 5/10/95

A resolution on "Managed Care" was referred to the Council by the House of Delegates for further study. The House approved the reference committee report that stated that it agreed with the essence of the resolution, but found it too complex in its current form. In recognition of the fact that many of these issues raised have been addressed or are currently being addressed by CSMS, it was recommended that the staff prepare an analysis of the resolution.

A staff report was distributed to the Council at this meeting which stated that the resolution asks for a "Master Plan." Currently CSMS does have a comprehensive policy statement regarding Health Care Reform which is going to be updated. CSMS has also adopted a resolution that directs our legislative agenda toward pursuing the Patient Protection Act. A coalition is also being developed to work on managed care issues. CSMS legal counsel and Public Affairs Director have begun a series of seminars to provide members with information regarding antitrust concerns, capitation, and other managed care issues. It is planned to expand this series of seminars and education opportunities. It was VOTED to accept the staff report and refer it to the Ad Hoc Committee on Health Care with the request that they report back to the next Council meeting.

Report of AMA Delegation

Dr. Kamens, Chairman of the Delegation, submitted a comprehensive written report which was distributed to the Council members. He highlighted topics of prime interest such as Medicare reform, Medicaid reform, tort reform, and the Patient Protection Act. He reported that it appeared that reduced reimbursement was a given. This was about systems changes, ie, the massive thrust for managed care in Medicare and Medicaid and the potential for adverse effects on patients.

He stated that in order for the AMA to enhance its effectiveness, considerable effort has been expanded in reorganizing its own internal structure. Greater integration has been fostered. Consolidation has taken place and significant progress has been made by work groups in order to identify specific roles and tasks for each part of the federation.

It was reported that James Todd, M.D. was retiring as Executive Vice President of the AMA in 1996. Lonnie Bristow, M.D., was installed as the 150th President of the AMA. Dr. Bristow was the first African-American to become President and the first President nominated and elected from a specialty society with limited representation rather than from a state society.

Legislative Update

Dr. Parke reported on an end of session report that was distributed to members of the Council. The report included a commentary on legislation that CSMS tracked during the session, including the top three issues which are as follows:

- An Act Concerning the Hold Harmless Clause for Managed Care Providers was approved and will become effective October 1.
- Any Qualified Provider Legislation did not pass.
- An Act Concerning Anti-Trust & Health Care Arrangements died in committee.

Dr. Parke reported that the Office of Health Care Access (OHCA) is being reorganized and will assume the duties of the Commission on Hospitals and Health Care. It was VOTED to strongly urge the Committee on Legislation to make immediate preparation for pursuing Any Qualified Provider legislation.

The question was raised about the ethics of conflict of interest of the various specialties on legislative issues and the problem of lobbyists representing specialty societies and county associations. It was stressed that medicine should speak with a unified voice or else it could be detrimental to all concerned. Dr. Hollister suggested that perhaps a letter over his name should be sent to members of the specialty sections discussing in a generic way that there have been problems in differences of positions and extend an invitation to the sections and county associations to meet and open some kind of communications so that they can work cooperatively. It was VOTED that the President of the Society and Chairman of the Council appoint an Ad Hoc committee to study the problem and to enhance cooperation within the specialty sections, etc.

Committee on Public Health

It was VOTED to endorse the recommendation of the Committee on Public Health to distribute to its members and the media a position paper entitled "Violence in the Media Sends the Wrong Message." The document was developed by the consensus of the profession. The document will be placed in a physician's waiting room and seeks the support of patients.

Committee on Statewide Medical Planning

At the request of the Council, the subject committee formulated a recommendation regarding a CSMS policy statement on Medicaid Managed Care. A final report was distributed to the Council outlining its recommendations and asking CSMS to adopt a positive policy statement on Medicaid Managed Care that included the following:

- Emphasis on prevention, early intervention, patient education and outreach.
- Provide and maintain appropriate access for patients to primary, specialty and tertiary medical care.
- Achieve wide quality panels and encourage provider participation by easing the administrative burdens and providing adequate level of reimbursement.
- Appropriate referral practices must be maintained in each plan.
- No linkage between a managed care plan's provider contract for the Medicaid plan and their other lines of business.

The contents of this report were included in the Committee's report to the House of Delegates on May 10, 1995 and was accepted at that time. The Council received it as information.

Medicare Payments

A communication was received from a member concerning reimbursement by Medicaid of the full deductible of qualified medicare beneficiaries. It was reported that there have been successful actions brought in four Federal Circuit Courts requiring Medicaid to pay the full deductibles of qualified medicare beneficiaries and the elderly poor. It was VOTED to refer this subject to CSMS legal counsel for further study and report back at the next Council meeting.

Dates of Future Council Meetings

Wednesday, 23 August 1995 (5:00 P.M.)
Thursday, 12 October 1995.

***Letter to the Editor**—continued from page 505*

suggest, neither the British admiralty nor the East India Company nor physicians of that day drew the appropriate conclusions.

Although Captain Cook did greatly reduce the incidence of scurvy on his second long voyage by prudent use of fresh fruits and vegetables, he ascribed his success in preventing scurvy largely to good hygiene. I believe the origin of the word "Limeys" is not from Captain Cook because the British Admiralty, when they finally took Dr. Lind's advice after he died—and, of course, after Cook's death, supplied their ships with lemons, not limes. Lemons are a better source of ascorbic acid. Subsequently they began to use limes and continued to do so, probably because the English plantation owners in the Caribbean persuaded the Navy to buy the limes they could profitably provide rather than to purchase lemons from Italy and other Mediterranean countries. Limes did prevent scurvy, of course, but the derisive term "Limeys" was used in the same kind of ignorance that previously prompted English sailors to call the Dutch sailors "krauts" because they ate sauerkraut, a weaker but not wholly ineffective source of vitamin C.

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IN MEMORIAM

BERRY, ROBERT W., Columbia University College of Physicians and Surgeons, 1950. Dr. Berry, a retired cardiothoracic surgeon, practiced for more than 30 years in the Bridgeport area. He served as Chief of Staff, Chief of Surgery, and Chief of Cardiac Surgery at area hospitals. Dr. Berry was an active member of the Board of Directors at St. Vincent's Medical Center as well as serving as Medical Director of Cardiac Services. He was a member of the Fairfield County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Berry died 30 May 1995 at the age of 69.

BOWER, RUSSELL S., Madras Medical College, Madras University, India, 1945. Dr. Bower, a New Britain neurosurgeon, was the senior attending neurosurgeon at New Britain General Hospital until his retirement in 1988. He also practiced at Bristol and Bradley Memorial hospitals. Dr. Bower was a member of the Hartford County Medical Association and the Connecticut State Medical Society. Dr. Bower died 15 May 1995 at the age of 75.

CITRANO, EUGENE, C., Faculté de Médecine del'Université Catholique de Louvain, Belgium, 1958. Dr. Citrano was a general practitioner in Trumbull and served as an attending physician on the staff of Bridgeport Hospital. From 1960 to 1967, Dr. Citrano was a team sports physician for Bullard Havens State Vocational School. He was also the medical athletic director for all school sports in the town of Trumbull from 1968 to 1988. In addition to the American Academy of Family Physicians, Dr. Citrano was a member of the Fairfield County Medical Association and the Connecticut State Medical Society. Dr. Citrano died 10 April 1995 at the age of 67.

COLE, RANSEY G. SR., Meharry Medical College School of Medicine, 1944. Dr. Cole maintained a private practice in New Haven and served on the staff of St. Raphael and Yale New Haven hospitals. Dr. Cole was a member of the New Haven County Medical Association and the Connecticut State Medical Society. Dr. Cole died June 1995 at the age of 73.

COLE, RAYMOND, M., University of Cincinnati College of Medicine, 1957. Dr. Cole maintained a medical practice at Greenwich Hospital where he formerly served as the head of the Department of Otolaryngology. Active in various Greenwich physicians' organizations and in the American Academy of Otolaryngology, Dr. Cole was a member of the Fairfield County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Cole died 24 May 1995 at the age of 66.

ELLIS, WILLIAM A., Jefferson Medical College, 1940. Prior to his retirement, Dr. Ellis, a surgeon, was president of the medical-dental staff at St. Francis Hospital and Medical Center. He served on the staff of St. Francis from 1947 to 1982. Dr. Ellis was a member of the Hartford County Medical Association where he served as a delegate to the Connecticut State Medical Society from 1982 to 1985, the Connecticut State Medical Society where he served on the Hospital Committee from 1979 to 1982, and the American Medical Association. Dr. Ellis died 21 May 1995 at the age of 80.

GUTKOWSKI, THADDEUS J., Albany Medical College, 1964. Dr. Gutkowski maintained a private practice in gynecology and obstetrics in Hartford. He was active on numerous town committees in South Windsor. A Fellow of the American College of Obstetrics and Gynecology, Dr. Gutkowski was a member of the Hartford County Medical Association where he served as a delegate to the Connecticut State Medical Society from 1984 to 1995, the Connecticut State Medical Society, and the American Medical Association. Dr. Gutkowski died 24 May 1995 at the age of 60.

KEEGAN, JAMES T., University of Maryland School of Medicine, 1955. Dr. Keegan, a general surgeon, maintained a private practice in Milford for 11 years. Prior to that, he served on the staff of Milford Hospital for 24 years. Dr. Keegan served as team physician for Milford High School from 1968 to 1972 and as New Haven County medical examiner from 1973 to 1984. He was a member of the New Haven County Medical Association where he served as a delegate to the Connecticut State Medical Society from 1975 to 1981, the Connecticut State Medical Society, and the American Medical Association. Dr. Keegan died 25 March 1995 at the age of 65.

LIN, PAUL T.C., Aurora University Medical College, China, 1945. Dr. Lin was an orthopedic surgeon for 40 years and served on the staff of Griffin Hospital. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Lin died 25 May 1995 at the age of 75.

SLOSSBERG, DAVID S., Tufts University School of Medicine, 1934. Until his retirement in 1986, Dr. Slossberg was practitioner in Bloomfield serving on the staff of Mount Sinai, Hartford, and St. Francis hospitals. Dr. Slossberg was a member of the Hartford County Medical Society and the Connecticut State Medical Society. Dr. Slossberg died 8 May 1995 at the age of 87.

SUPLICKI, JOHN W., Tufts University School of Medicine, 1926. Dr. Suplicki maintained a private practice in Norwich for more than 65 years and served on the medical staff of the William W. Backus Hospital. He was a member of the New London County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Suplicki died 6 March 1995 at the age of 93.

THURMOND, JAMES E., University of Tennessee College of Medicine, 1947. Dr. Thurmond maintained a private practice specializing in general surgery and gynecology in Fairfield county for 43 years. He served as senior attending surgeon at Bridgeport Hospital. Dr. Thurmond was a member of the Fairfield County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Thurmond died 26 April 1995 at the age of 71.

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Severe Hypothermia in the Elderly

PAUL J. SCALISE, M.D., MARIANNE C. MANN, M.D., JOHN J. VOTTO, D.O.,
AND MICHAEL J. McNAMEE, M.D.

ABSTRACT—Hypothermia is not an uncommon clinical problem in the geriatric population. Several factors place elderly individuals at risk, including their reduced ability to sense and react to cold and their underlying medical conditions and medications. Successful detection and treatment of these patients involve an awareness of these risk factors and the characteristic physiology of the elderly, as well as an appreciation of the often controversial aspects of hypothermia management. Elderly victims of severe hypothermia have a particularly grave prognosis. We present one of the oldest reported survivors of severe hypothermia, and discuss some unique aspects of his presentation.

Case Report

An 86-year-old man was brought to the emergency room after being found unresponsive in a cold apartment. He had been seen earlier that day, and was reported to be doing well. He had a history of folate deficiency, and a past history of a duodenal ulcer. He was taking no medications, and did not smoke or use alcohol.

On arrival he was unresponsive to all stimuli and had decorticate posturing. His temperature did not register on a standard thermometer, and his skin was cool. Blood pressure by Doppler was 86/70 mm Hg, pulse was 133 and irregular, and respiratory rate was 10. His pupils were fixed and dilated, and mild periorbital edema was noted. Lungs were clear, and heart sounds were distant and irregular. A midline lower abdominal hernia was noted, and bowel sounds were slightly diminished. His extremities were flaccid with absent deep tendon reflexes.

Laboratory results revealed a hemoglobin of 9.8 g, with a white blood cell count of 7,300 and a platelet count of 173,000. The serum electrolytes were within normal limits except for a potassium of 2.9 mmol/L. The glucose was 138 mg/dL, and the creatinine was 1.3 mg/dL. Serum amylase was not elevated. Prothrombin and partial thromboplastin times were prolonged at 15 and 52 seconds respectively. An arterial blood gas drawn on room air revealed a pH of 7.19, a PaO_2 of 49 torr, and a $PaCO_2$ of 33 torr. Blood lactate level was elevated at 5.5 mmol/L. Blood and urine toxicology screens were negative. Initial electrocardiogram revealed atrial fibrillation with a rapid ventricular response and the presence of Osborne waves. A chest radiograph was normal.

While in the emergency room, ventricular fibrillation occurred. He was successfully defibrillated and resumed a stable idioventricular rhythm. He was intubated and transferred to the intensive care unit. Upon arrival, his temperature was 25°C rectally, pulse 36, and blood pressure 78/42 mm Hg. A dopamine infusion was begun, and the patient was treated with warmed nasogastric and rectal

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lavage, warmed intravenous fluids, and warmed humidified oxygen. An external warming blanket was also used. Thiamine and potassium were administered. Blood, urine, and sputum cultures were obtained, as well as thyroid function tests and a serum cortisol level. Broad spectrum antibiotics were given.

The patient's temperature gradually increased at a rate of approximately 1°C per hour over the next 12 to 18 hours. His blood pressure and pulse became normal, and dopamine was discontinued. A head computed tomographic scan revealed no underlying pathology, and his neurologic status returned to normal within 36 hours. He was extubated 48 hours after admission. All cultures were negative, and thyroid function tests and serum cortisol level were normal. Coagulation parameters returned to normal without intervention. The patient was transferred to an intermediate-care floor, where he initially did well. However, on the sixth hospital day multiple sinus pauses were noted on the cardiac monitor, and a ventricular demand inhibited (VVI) pacemaker was placed. His cardiac status stabilized, and he was discharged on the 12th hospital day.

Discussion

Hypothermia is defined as a core body temperature below 35°C. It may be classified into three levels of severity: mild (32°C to 35°C), moderate (31°C to 28°C) and severe (<28°C). Epidemiologic surveys have revealed an increased propensity of elderly people to develop hypothermia, and it is not unusual for this to occur while they are at home or in the hospital, even during warm months.[1]

Several factors place the geriatric population at particularly high risk for hypothermia. Varying degrees of autonomic dysfunction may be present, including an inability to vasoconstrict peripheral vessels, and increase heart rate in response to cold.[2] In fact, it has been suggested that elderly subjects with signs of autonomic dysfunction, including orthostatic hypotension and a diminished core-shell (urine temperature-hand temperature) gradient, may be at particularly high risk for hypothermia.[3] Several studies have demonstrated that older individuals have a reduced ability to perceive cutaneous temperature changes.[4] In one large-scale survey, 10% of asymptomatic elderly subjects living at home were found to have body temperatures below 35.5°C.[5] Even patients able to detect cold temperature may be at risk because of physical impairments and an inability voluntarily to regulate their environmental temperature. Metabolic rate and heat production are lower in the elderly, and some evidence suggests that their shivering response is reduced as well.[6] Underlying conditions such as heart disease, hypoglycemia, hypothyroidism, chronic alcoholism, and strokes, as well as overdoses of narcotics, sedatives, or antidepressants may also predispose older patients to hypothermia. Recently, underlying sepsis was reported in 78% of 54 elderly patients presenting with hypothermia.[1]

The management of hypothermia includes the controversial area of rewarming, with several methods available. Simply preventing heat loss results in a greater than 0.5°C per hour rise in body temperature. Active external rewarming entails the risk of peripheral vasodilation resulting in hypotension, a side effect to which elderly patients are particularly susceptible.[7] Active internal rewarming techniques include the use of warm humidified oxygen, warm intravenous fluids, and gastric, pleural, and peritoneal lavage with heated fluids. Humidified oxygen may be safely heated to a temperature of 40°C to 46°C, and lavage fluids are usually warmed to 38°C to 43°C.[8] Warming of removed blood during hemodialysis and cardiopulmonary bypass has also been advocated. Some of these procedures are not readily available or applicable to individual patients. For example, warm peritoneal lavage was considered for our patient, but could not be performed because of a large lower abdominal hernia, and cardiopulmonary bypass was not available at our institution. Notably, no rewarming methods have been shown to have a particularly favorable influence on prognosis, even in cases of severe hypothermia.[7]

Other aspects of treatment include oxygen and ventilatory support if signs of deteriorating lung function occur. Correcting $PaCO_2$ and pH values for patient temperature is not recommended;[9] correcting PaO_2 values, however, is recommended to avoid overestimation of PaO_2. Warm, slightly hypotonic fluids are administered via central lines, since patients are uniformly volume depleted from cold-induced diuresis. Blood glucose should be determined and glucose given if indicated. A thorough search for infection should be made. Although empiric antibiotic administration is controversial, it may be appropriate initially to treat the elderly, since sepsis may often present as hypothermia in this population. Toxicologic screening should be performed. Pancreatitis can occur as a complication of hypothermia, and should be investigated. A complete blood count and coagulation profile should be obtained given the increased incidence of cytopenias and disseminated intravascular coagulopathy in this age group. Thiamine should routinely be given to stuporous patients until Wernicke's encephalopathy can be ruled out. Thyroid hormone is only administered to patients with suspected myxedema, and routine corticosteriod administration has no proven benefit.

Cardiac arrhythmias frequently occur during hypothermia, and can be an extreme challenge to manage. It is recommended that rescuers palpate the carotid pulse for a full minute before diagnosing pulselessness and beginning cardiopulmonary resuscitation, since sinus bradycardia is common.[10] Pacemakers are usually unnecessary, and atropine is not effective at temperatures below 26°C.[7] Furthermore, the bradycardia usually resolves spontaneously with rewarming. Atrial fibrillation and flutter are also common, and usually require no treatment other than rewarming. Osborne suggested that the presence of J waves may warn of impending ventricular fibrillation, but this has not been shown by others.[11] Ventricular ectopic beats are common, but do not require treatment. Ventricular fibrillation, however, is an ominous rhythm and appears to be most responsive to bretylium. Attempted defibrillation is often unsuccessful in patients with core temperatures below 28°C,[12] although our patient readily responded. Asystole can occur, and in one review of 22 hypothermic patients with a mean age of 69, it was the terminal rhythm.[11] Digoxin toxicity must be considered in the geriatric population, being found in 20% of elderly hypothermic patients in one large series.[1]

The patient presented here is one of the oldest reported survivors of such a severe degree of hypothermia. Elderly people with hypothermia have a grave prognosis, with a 74% mortality reported in one series.[1] Indeed, compared with younger subjects, people 75 years of age or older are five times more likely to die from accidental hypothermia.[13] A heightened awareness of the presenting features and physiologic consequences of hypothermia in the elderly may improve the detection, management, and ultimately survival of these patients.

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Alcoholic Rhabdomyolysis: A Review

OCTAVIO BESSA, JR., M.D.

ABSTRACT—Two episodes of acute alcoholic myopathy occurring in one patient are reported to focus attention on a common problem, albeit one not well recognized. A brief review of rhabdomyolysis and its complications is presented.

RHABDOMYOLYSIS, the destruction of skeletal muscle, is a common clinical encounter that occurs under two major headings: traumatic and nontraumatic. The latter is common and often overlooked despite large numbers of publications in the past 25 years.[1-5] It may be seen in a variety of clinical circumstances, as in drug abuse, comatose states, infections, seizures, after prolonged exertion, hypokalemia, myositis, hyperprexic states, alcoholic sprees, and others. Unusual causes have been described as a consequence of limb positioning during urological and orthopedic procedures, and following massive bee stings (with fatal outcome).[6-7]

Case Report

The following presentation represents a classical form of alcoholic rhabdomyolysis that went unnoticed in the first hospitalization, and subsequently led to a longer hospital stay requiring hemodialysis because of the intensity of the acute renal failure.

A 47-year-old male was brought to the emergency room because of hematemesis following an alcoholic debauch of seven-days' duration. There was documented evidence on admission of a bleeding lower esophageal ulcer, "chemical hepatitis," and acute pancreatitis. Two urine specimens contained no red cells and were ortholodine positive. The significant laboratory data of the two hospitalizations are shown in Table 1. He was discharged 13 days later after undergoing dialysis twice. The diagnostic impression was multiorgan failure associated with ethanol abuse and ingestion of a toxic substance. The patient was not an habitual drinker and remained well until the second hospitalization six months later with the same history and findings (see Table 1). On this occasion acute rhabdomyolysis was recognized on admission and he was treated with volume replacement followed by vigorous hydration, bicarbonate, and assisted diuresis using loop diuretics. During these two drinking sprees he had nibbled only occasionally on food.

Discussion

There is some evidence that rhabdomyolysis was first described in the Bible in the Book of Numbers, when many Israelites during their exodus from Egypt died with stained urine after abundant consumption of quail.[8] These birds are known to feed on hemlock seeds in the island of Lesbos and to migrate annually to North Africa. Quail eating and rhabdomyolysis is still found in Greece and Algiers.[9] Myoglobinuria was first described in Europe in 1881 as a new form of hemoglobinuria and later extensively studied by Meyer-Betz in 1911.[10,11] It was not until the Battle of Britain in 1940 that rhabdomyolysis and acute myoglobinuric renal failure from crush injuries was well documented.[12] When alcoholic rhabdomyolysis occurs it is always during an alcoholic debauch when food intake is minimal or nil. These "two human experiments" described above represent the classic form of the acute alcoholic myopathy and are nearly identical to the elegant studies of Haller in laboratory animals,[13] when the myopathy is triggered upon sudden food withdrawl.

Regardless of its cause rhabdomyolysis carries potential lethal complications: acute renal failure, hyperkalemia, muscle compartment syndrome, and disseminated intravascular coagulation (DIC). The dumping of the muscle

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Table 1

	CPK (U/L)	*K (mEq/dL)*	*HCO (mEq/dL)*	*P (mg/dL)*	*Ca (mg/dL)*	*BUN (mg/dL)*	*Creatinine (mg/dL)*
December 1993							
Day 1	5343	5.3	17	6.1	5.0	50	4.1
Day 5	513	3.9	18	3.4	8.0	154	11.3
July 1994							
Day 1	5800	5.3	8	13.5	6.2	21	3.0
Day 5	56	3.4	22	2.5	8	90	9.2

	Hct	*Uric Acid*	*Ethanol*	*DIC*	*Myoglobin*	*Urine pH*	*Alb*
December 1993							
Day 1	42%	19	13	+	+	5	2.8
Day 5	26%					5	
July 1994							
Day 1	39%	11	nd	+	+++	6	2.8
Day 5	33%	12.7				6	

contents into the circulation leads to an increase in creatinine (from creatine), potassium, uric acid (from nucleotides), phosphate, muscle enzymes, and myoglobin which are rapidly cleared by the kidneys (75% of creatinine). Hypocalcemia is a frequent finding due mainly to the deposition of calcium in the injured muscles. During the diuretic phase hypercalcemia is common and reflects reabsorption of the previously deposited calcium.

The exact mechanism of alcohol injury to the muscle cell has not been defined but there is enough evidence to incriminate it in the disruption of the two major aspects of muscle metabolism: the substrate and the membrane. It can reduce substrate availability by inhibiting gluconeogenesis and pancreatic insulin release; it can change the membrane viscosity by penetrating into the lipid bilayer and it can also interfere with the Na^+/K^+ ATP-ase activity.[14] The mechanism of myoglobin nephrotoxicity is still unclear. One prevailing opinion is based on observations in animals and humans that when myoglobin is excreted in an acid urine ($pH < 5.6$) the heme splits from the globin and precipitates in the proximal tubules. Administration of ferriheme is also reported to cause severe renal injury.[15,16] The fact that the proximal tubules have no role in acidifying the urine suggested to Zager that he should repeat these experiments by injecting rats with myoglobin and proceed with histochemical studies during aciduria and alkalinuria.[17] He was able to demonstrate that myoglobin and not hematin precipitates in the proximal tubules and that alkalinuria protects the kidney not because of changes in pH but by inducing solute diuresis.

Early recognition is essential in the treatment of rhabdomyolysis to prevent its complications including acute renal failure. Diagnosis can easily be made by the demonstration of myoglobin in the urine along with marked elevations of creatine kinase in the serum. Two recent reports in the literature of babesiosis and human granulocytic ehrlichiosis mention severe complications and death from this tick-transmitted disease.[18,19] These patients had elevated creatinine, DIC, acute renal failure, and elevated enzymes (creatine kinase determination was not made). One may wonder if rhabdomyolysis was responsible for the severe morbidity and high mortality.

Conclusion

Rhabdomyolysis occurs in a variety of clinical circumstances and has potential lethal complications. A classical example associated with acute alcoholic intoxication is presented. Routine serum creatine kinase levels should be performed in most acute hospital admissions and postoperatively in patients undergoing prolonged surgery with restrained limb positioning.

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Management of Difficult Wounds with Biobrane®

LAURENCE KIRWAN, M.D.

Abstract—Nine patients with open wounds are reviewed. All wounds were debrided prior to application of Biobrane®. Silver sulfadiazine was applied twice daily. All healed uneventfully after closure.

Biobrane is recommended for treatment of difficult and large open wounds; its use reduces evaporative loss and bacterial proliferation, enabling development of a healthy wound base suitable for grafting or delayed closure. This approach can prevent the necessity for flap repair and reduce pain during wound dressing.

Wounds such as lower extremity ulcers are often resistent to therapy. Repeated debridements may result in further desiccation without progression of wound healing.

Biobrane-treated wounds develop a healthy granulating base which can be grafted or closed.

Patients and Methods

THE treatment of nine patients with difficult-to-manage woulds are reviewed (Table I). The etiology of the wounds includes trauma, pressure, postoperative wound dehiscence, systemic lupus erythematosus, and ischemia.

The management of these wounds consisted of debridement and application of Biobrane (large pore type) followed by twice daily dressings with silver sulfadiazine. Wound closure was performed either with a split-thickness skin graft or edge-to-edge closure.

Results

The average age of the patients was 59 years. Three were male, six were female. Three patients were diabetic. All wounds but one were of the lower extremity. One patient had wounds of both lower extremities and one upper extremity.

Treatment consisted of split-thickness skin grafting in nine and delayed primary closure in two patients. The size of the skin graft varied from 12 to 900 cm^2. Biobrane was applied after one debridement in three cases, after two debridements in five, and after three debridements in one case. The total duration of application of Biobrane averaged 19 days with a maximum of 55 and a minimum of six days. All wounds healed completely, and no wound broke down subsequently. Follow-up was a minimum of two months, a maximum of 48 months, and an average of 14.7 months.

Case Reports

CASE 1.—DG, a 37-year-old male thrown from a motorcycle sustained de-gloving wounds to both lower extremities and the left upper extremity with extensive abrasions to the back and both lower extremities (Fig. 1A).

The wounds were initially debrided and left open. Two days later he was returned to the operating room with wound sepsis. The right thigh, right knee, and left elbow were incised further. He was returned to the operating room 48 hours later for further incision and drainage and application of Biobrane to all wounds. Thereafter dressings were performed in the ward. Six days later, the Biobrane was removed (Fig. 1B). All wounds were closed directly or with skin grafts. All wounds healed (Fig. 1C), and were seen at follow-up, 3.5 months later.

LAURENCE KIRWAN, M.D., attending surgeon, Norwalk Hospital, Norwalk.

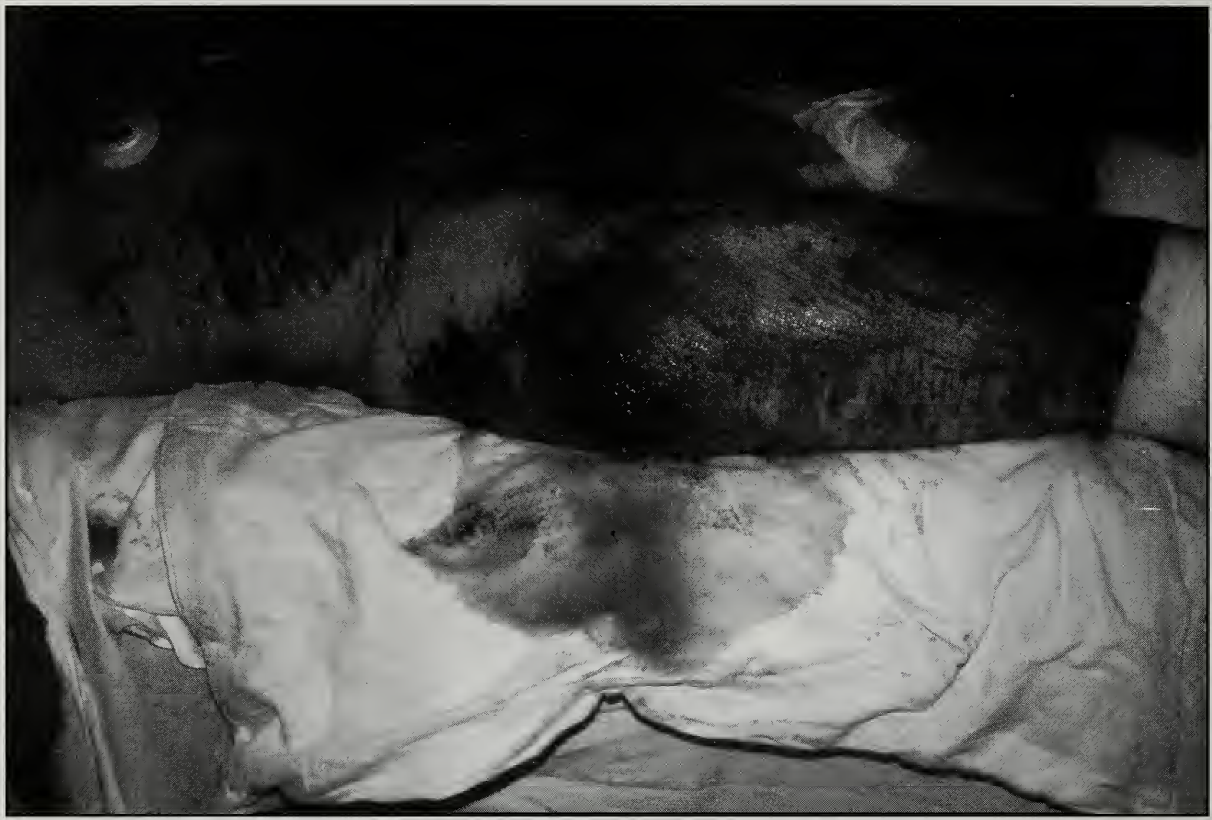
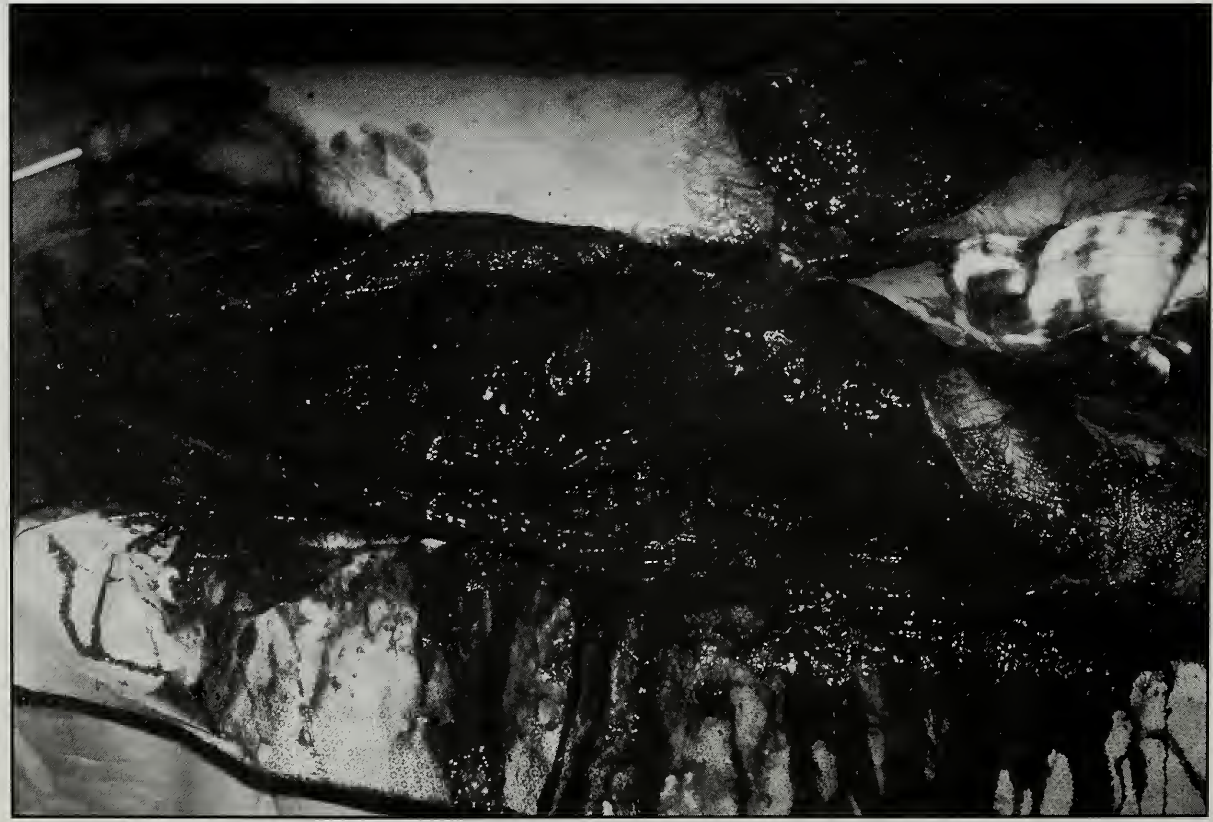


Figure 1A.—A 37-year-old man with extensive abrasions of the back and all four extremities with de-gloving injuries of the left elbow and both lower extremities.

Figure 1B.—Open wound after removal of Biobrane® and prior to closure.



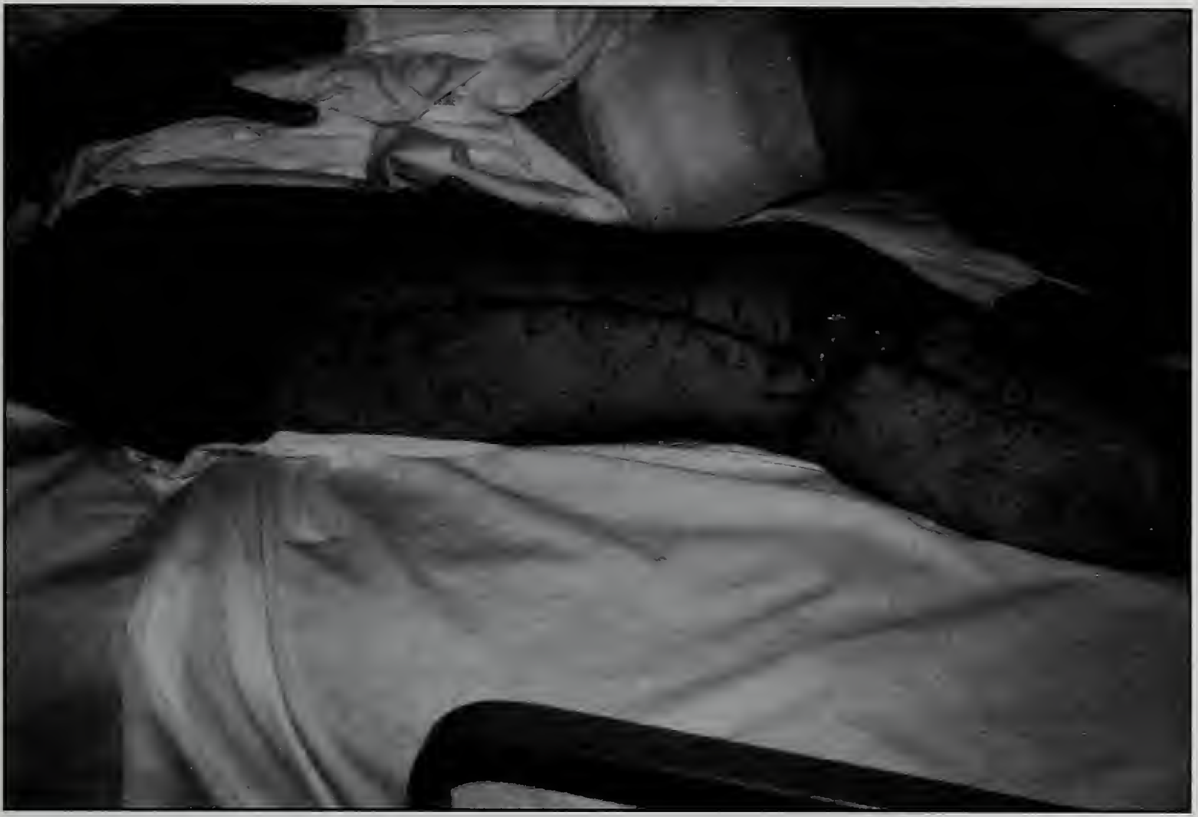


Figure 1C.—Healed wounds after delayed primary closure and split thickness skin grafting.

Case 2.—AS is a 74-year-old white female with a history of systemic lupus erythematosus, nephrotic syndrome, hypoalbuminemia, uremia, and diabetes. She presented with a necrotic ulcer with exposed muscle and tendon of the left leg (Fig. 2A). She had been treated by her referring physician with multiple debridements over several months without improvement. After referral, all wounds were debrided and Biobrane applied. The procedure was repeated nine days later. Four days later she developed an infection of the right leg which was incised and drained. At the same time, the ulcer of the left leg was debrided for the third time (Fig. 2B) and Biobrane applied. Eleven days later the Biobrane was removed from the left leg and the wound was grafted. The wound of the right leg was debrided and Biobrane applied. Eight days later the right leg was grafted. All wounds healed uneventfully (Fig. 2C). Follow-up was 24 months later.

Case 3.—MG is a 71-year-old white female with wound dehiscence following a Linton procedure for deep venous incompetence. She had a history of CREST syndrome (calcinosis, Raynaud's phenomenon, esophageal motility disorders, sclerodactyly, and telangiectasia), atrial fibrillation, hypertension, and tricuspid regurgitation. She presented with an ulcer of the left leg with muscle and tendon exposed (Fig. 3A). All wounds were debrided and Biobrane applied. Seventeen days later the wound was debrided again and Biobrane applied. The wound was grafted 38 days after the second procedure, with complete take of the graft. The wound has remained healed (Fig. 3B). Her last follow-up visit was at 26 months.

Discussion

Biobrane is a membrane consisting of dimethylsoloxane mechanically bonded to a very finely knit flexible nylon fabric. It is coated by direct molecular bonding with polypeptide degradation products of dermal collagen. The material is sterile and can be reautoclaved. It is packaged in a dry sterile plastic wrap and has a long shelf life with no special requirements for storage. There are two types, a large (red label) and a small (green label) pore type. The small pore type is recommended for coverage of skin graft donor sites and does not allow sufficient drainage in the case of a contaminated wound. The large pore type allows drainage of wound discharge and does not act like the wall of an abscess. If there is excessive drainage that fails to dissipate throught the Biobrane then it should be changed more frequently. These changes should be accompanied by a wound debridement until the wound is sufficiently clean for the Biobrane to adhere. The wound will then appear as a healthy red granular layer beneath the Biobrane. When the Biobrane is removed a smooth layer of granula-

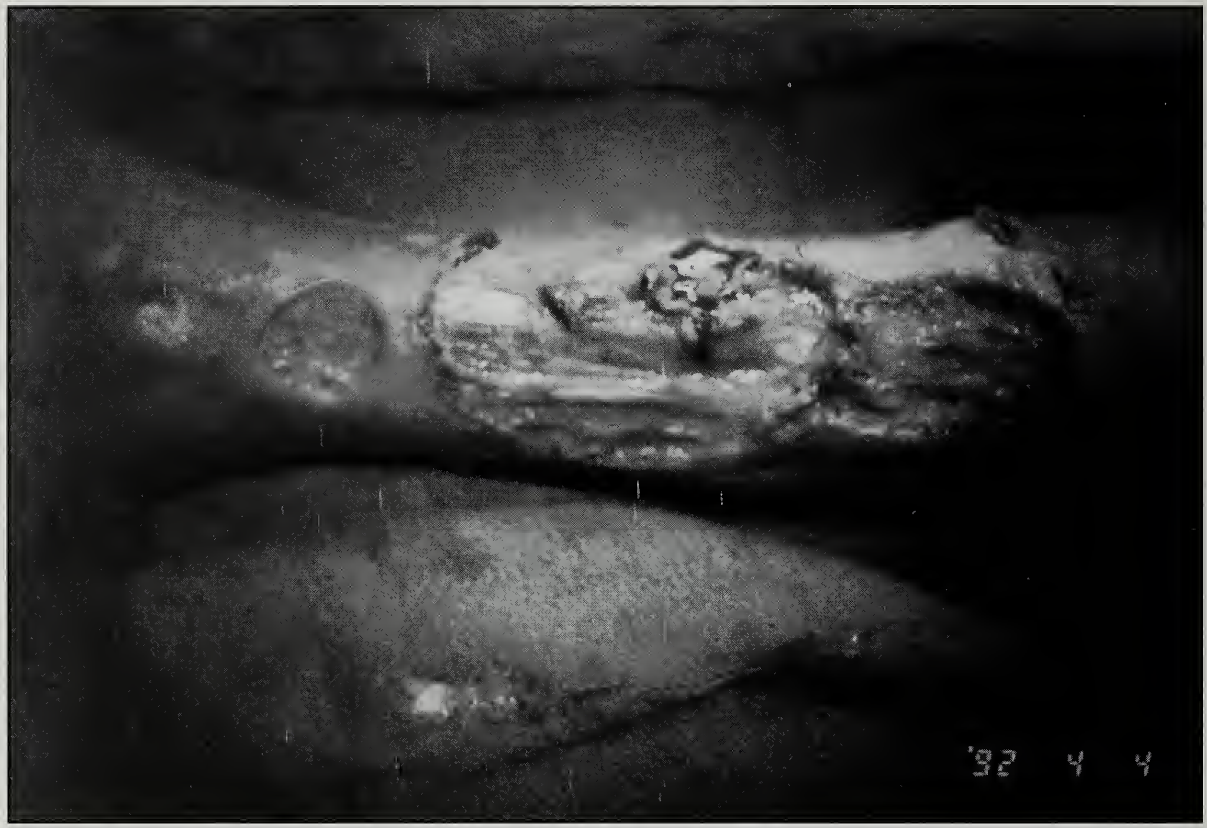
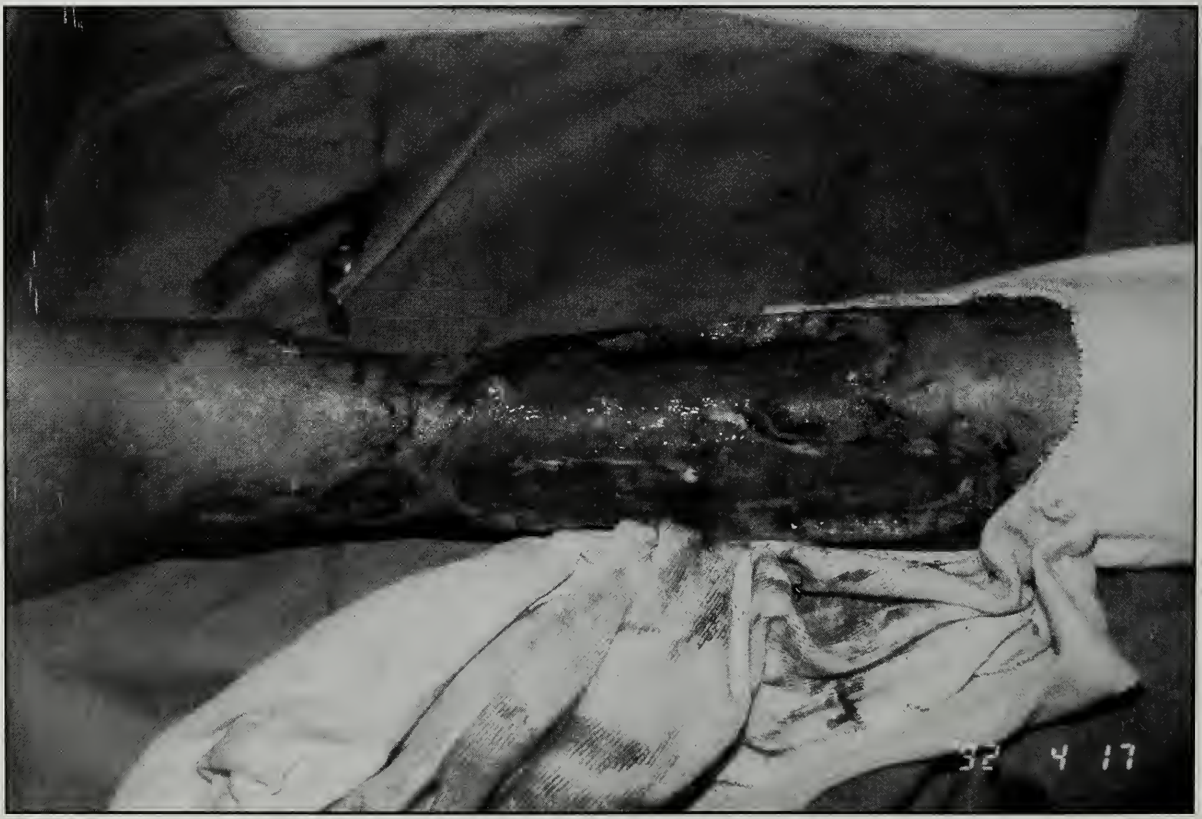


Figure 2A.—A 74-year-old woman with extensive ulceration of the left leg with necrotic tissue and exposure of muscle and tendon.

Figure 2B.—Open wound after two applications of Biobrane®.



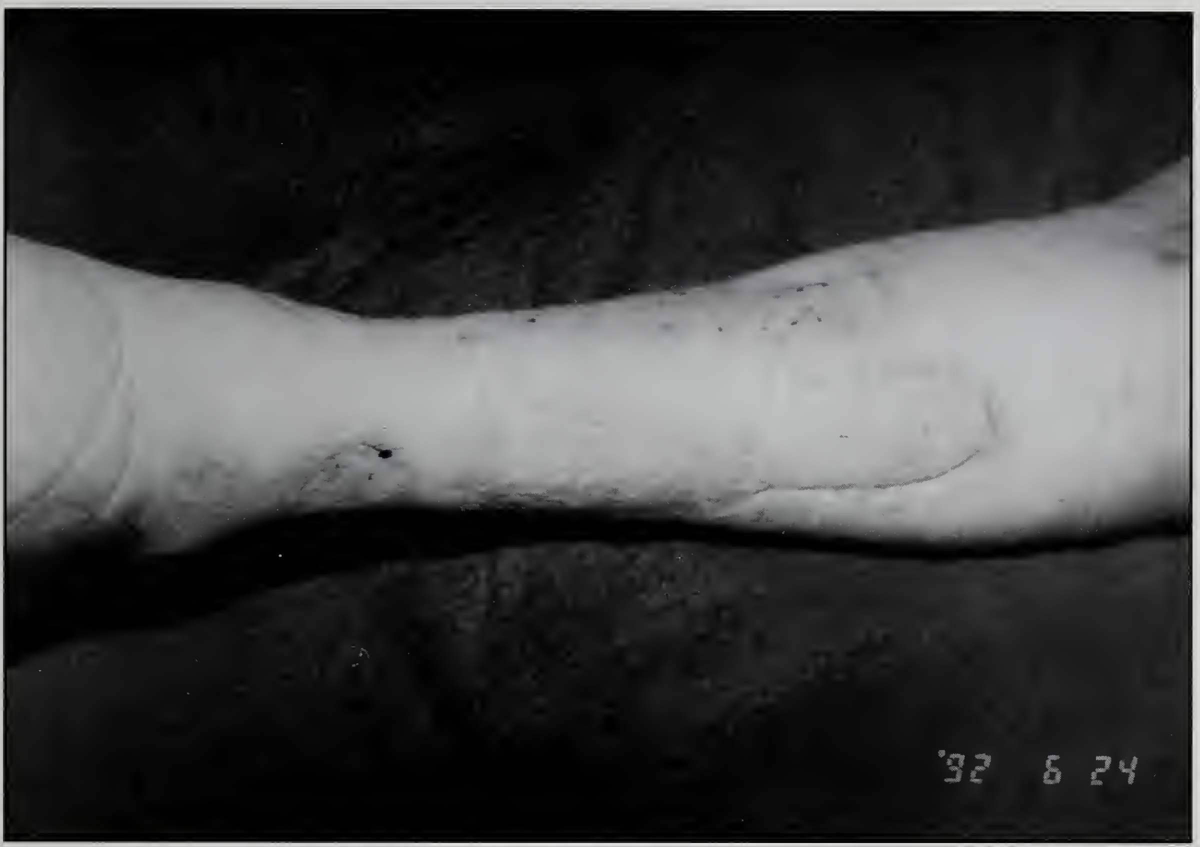
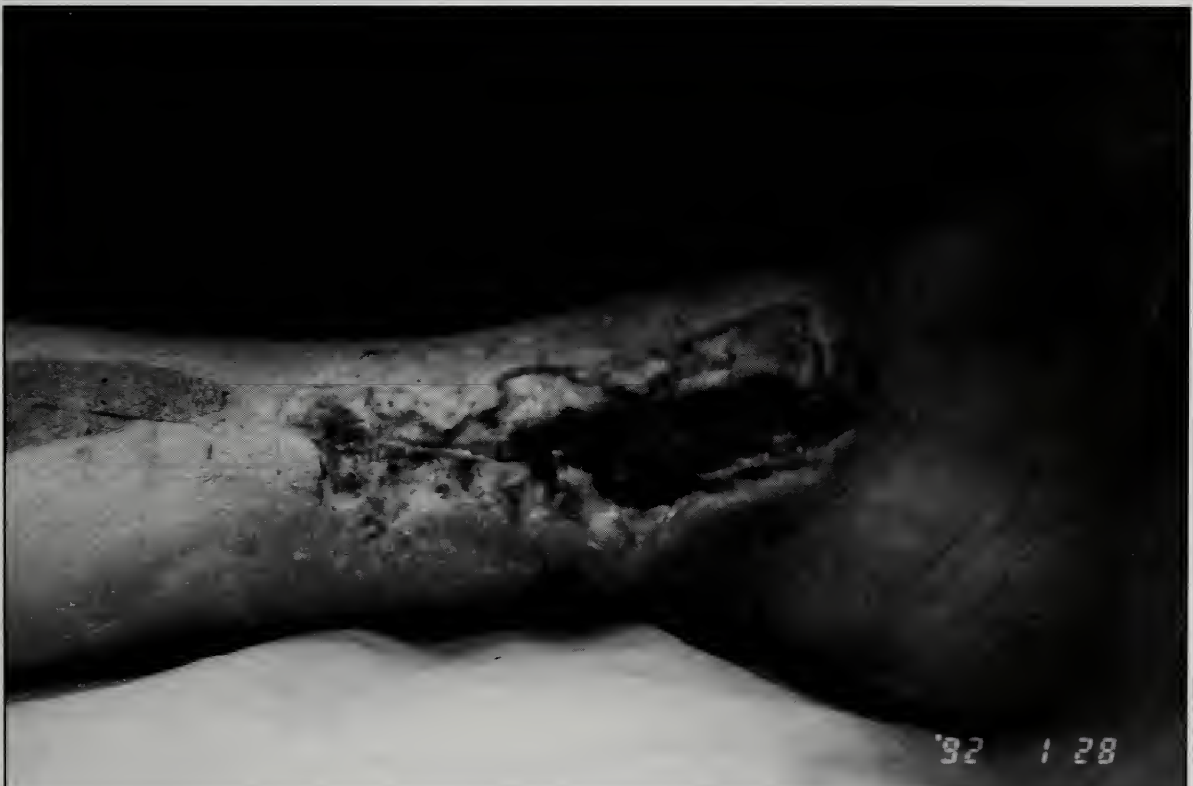


Figure 2C.—Healed wounds after split thickness skin grafting.

Figure 3A.—A 71-year-old woman with wound dihiscence following a Linton procedure with necrotic tissue and exposure of muscle and tendon.



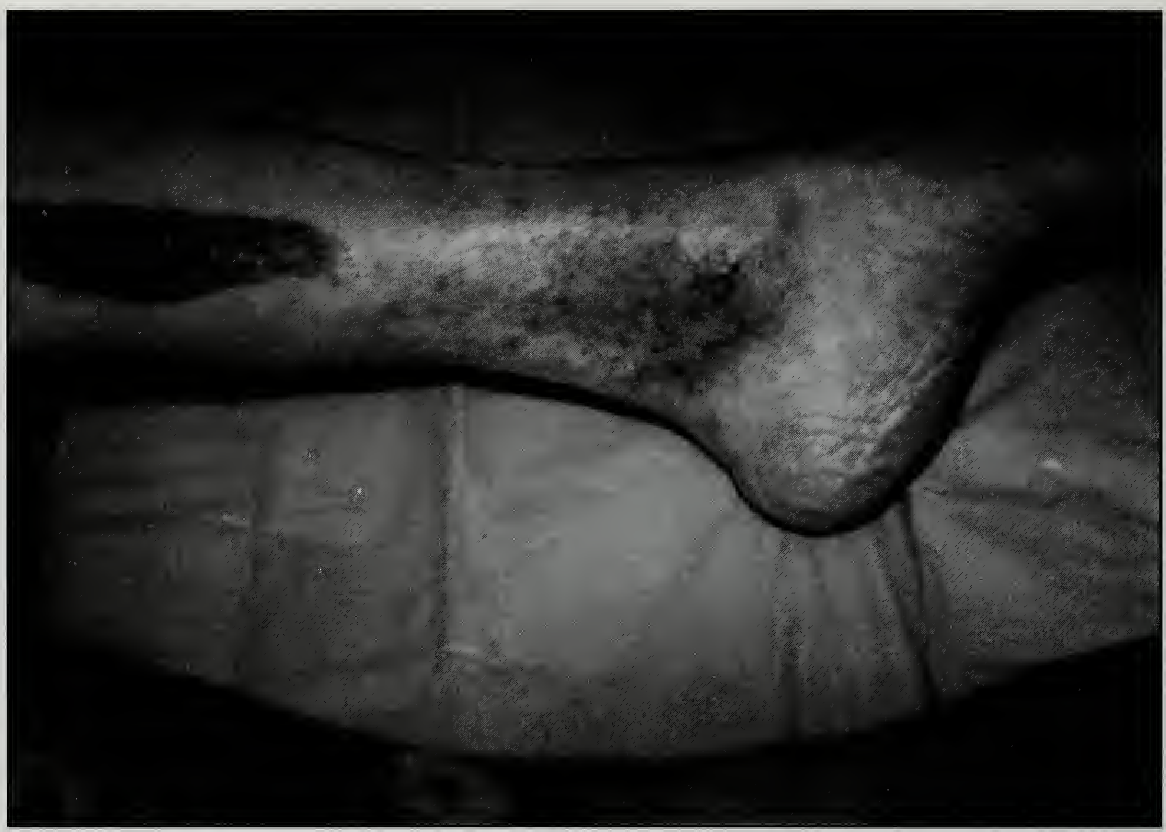


Figure 3B.—Healed wounds after split thickness skin grafting.

tion tissue will be apparent which will readily accept a skin graft.

Biobrane adheres to fresh wound surfaces as well as human allograft does.[1] It reduces evaporative water loss by 90% in test animals.[1]

Frank et al has shown reduced bacterial counts in burn wounds with application of Biobrane.[2] It was found to be a safe and effective alternative to biological dressings, adhering to the wound surface as a result of physical entrapment by fibrin.[2] Biobrane does not debride dead

Table 1.—List of Patients

Name	*Age*	*Mechanism of injury*	*Number of applications*	*Anatomical region*	*Method of closure*	*Skin graft surface area cm²*	*Duration of Biobrane® application (days)*	*Diabetic*	*Follow-up (months)*
JW	20	TR	2	thigh	STSG	900	11	NO	48
GC	30	WD	1	back	DPC STSG	20	14	NO	9
DG	37	TR	1	thigh	DPC STSG	150	6	NO	3.5
EV	65	PR	1	Achilles tendon	STSG	12	24	NO	5
EP	67	TR	2	dorsal foot	STSG	20 estimate	11	YES	7
MG	72	WD	2	leg	STSG	200 estimate	55	NO	27
AS	74	SLE	3 / 1	leg	STSG	260	24 / 8	YES	24
LP	77	TR	2	leg	STSG	190	6	NO	7
JL	89	ISCH	2	dorsal foot	STSG	20	9	YES	2

DPC: delayed primary closure, STSG: split thickness skin graft, WD: wound dehiscence,
TR: trauma, PR: pressure, ISCH: ischemia, SLE: systemic lupus erythematosus

tissue and requires a clean viable uninfected surface to adhere.[3]

Zachary et al showed the efficacy of topical treatment with silver sulfadiazine and mefenide acetate on Biobrane in reducing bacterial counts in infected wounds.[4]

Alternatives to Biobrane are other commercial preparations such as Vigilon®, Duoderm®, Op-site®, and Tegaderm®. Vigilon® must be changed daily. The other three have the negative feature of collection of wound exudate beneath the dressing with possible bacterial proliferation. Biological alternatives are human cadaver skin and porcine xenografts. Both have problems with availability, sterility, and cost. Porcine grafts must be changed frequently.

Conclusion

Debridement of nonviable tissue may result in dehydration of denuded tissue with further loss of tissue viability. Deeper structures, such as muscle and tendon, may be exposed complicating wound closure.

The method of treatment described may allow granulation of a wound over exposed tendon. Application of Biobrane prevents bacterial contamination and desiccation of the wound. In addition, wound care may be performed in the ward with significant relief of pain and without sedation or intramuscular analgesics.

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i-ˈpit-ə-mē\ *n* [L, fr. Gk *epitomē,* fr. *epitemnein* to cut shor
fr. *epi-* + *temnein* to cut — more at TOME] (1520) **1 a** :
summary of a written work **b** : a brief presentation or stat
ment of something **2** : a typical or ideal example: EMBOD
MENT (the British monarchy itself is the ~ of tradition
Richard Joseph) **3** : Plural — *Epit-o-mes* — A regul
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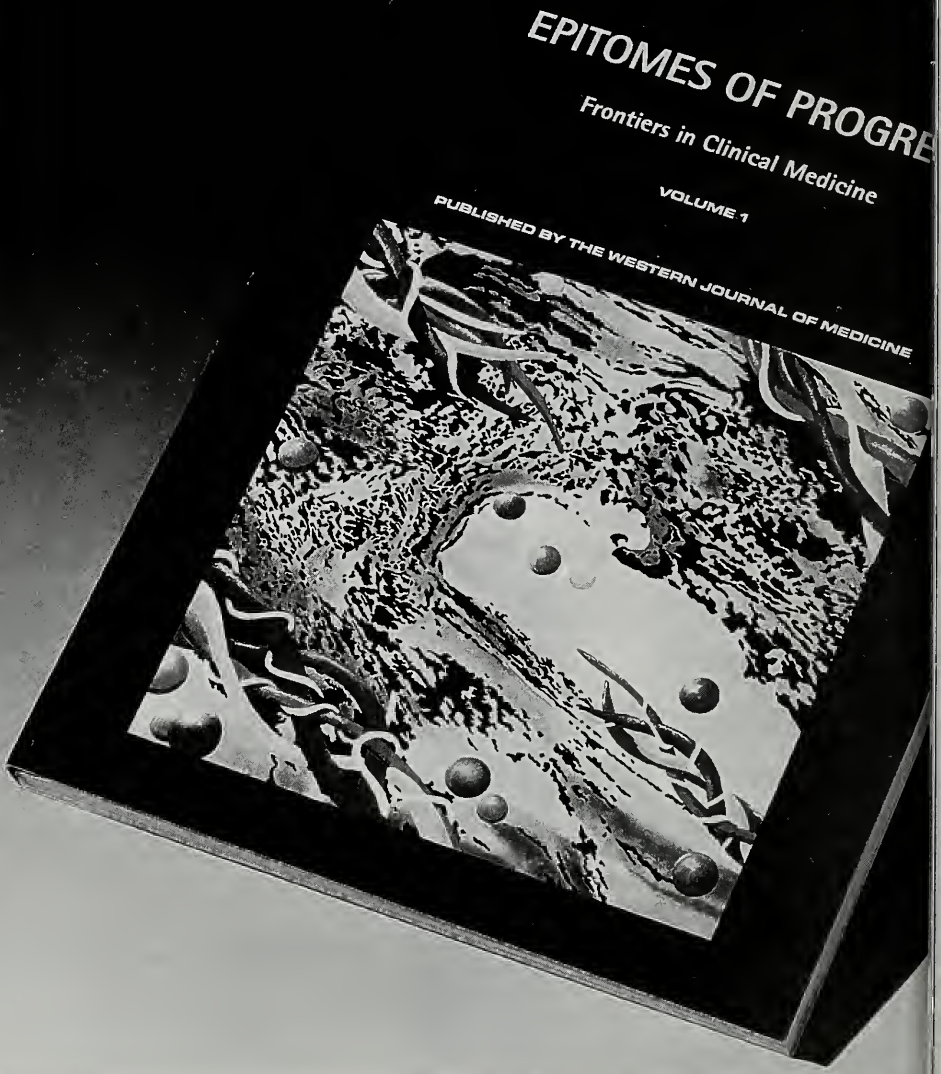
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Important Advances in Clinical Medicine

General and Family Practice

Ronald D. Cotterel, M.D. and Daljeet S. Rai, M.D., Section Editors

The Council on Scientific Affairs of the California Medical Association presents the following epitomes of progress in general and family practice. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and clinical importance. The items are presented in simple epitome, and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, researchers, and scholars to stay abreast of progress in medicine, whether in their own field of special interest or another.

The epitomes included here were selected by the Advisory Panel to the Section on General and Family Practice of the California Medical Association, and the summaries were prepared under the direction of Drs. Cotterel and Rai and the panel.

Screening Children for Lead Poisoning

LEAD from industrial sources, home remodeling, imported ceramics, and tap water has raised serum lead levels above 480 μmol per liter (10 mg per dL) in as many as four million preschool children in the United States.

Although lead poisoning effects may be asymptomatic, lead toxicity causes confusion, anorexia, anemia, and neuropathies. Severe lead poisoning leads to renal tubular necrosis, lead encephalopathy, and even death. Detection and early treatment notably reduce morbidity and mortality. Serum lead levels from regional reference laboratories cost $20 to $30 and are reliable with a maximum of 7% variation. Children, especially those six months to six years old, are at the highest risk for lead poisoning. Children absorb 40% to 50% of the lead they ingest, whereas adults absorb less than 25%.

Acceptable methods of treating lead poisoning are available. For serum lead levels of 480 to 1,210 μmol per liter (10 to 25 mg per dL), treatment requires identifying the lead source and removing it from the environment. Prescribing chelating agents for patients with lead levels under 1,880 μmol per liter (39 mg per dL) is controversial. In rare cases, patients with lead levels above 1,930 μmol per liter (40 mg per dL) merit chelation therapy or dialysis. Succimer, the recently approved oral form of British antilewisite, makes the outpatient treatment of moderate lead poisoning possible. Patients should take succimer, 10 mg per kg three times a day for five days, followed by 10 mg per kg twice a day for 14 days. The serum lead rebound level should be monitored at day 20. The cost of 19 days of succimer therapy is $150 to $200. Succimer's rare side effects include dyspepsia in less than 5% of patients and mildly elevated aminotransferase levels in less than 10%.

Acute lead poisoning dictates a cleansing of the gastrointestinal tract. Further therapy is based on the serum lead level and the patient's clinical state. In cases of long-term lead exposure, osteoblasts incorporate lead into the bone matrix. Lead mobilization tests to remove lead from bony stores are not standard care. Using x-ray fluorescence to determine long-term lead exposure is not standard practice but holds promise for the future.

The best method for screening children, mandatory or not, is asking whether a child spends much time in a structure built before 1950 where paint is peeling or renovation is in progress or whether the child's home is located near an industrial facility using lead. Exposure history is also important if a family member has had lead

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poisoning or a job or hobby that involves lead or lead dust. This simple method is painless and can help determine if serum testing is indicated.

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Antioxidant Supplements and Cancer Prevention

CONSIDERABLE patient interest has been sparked by recent lay-press coverage of ongoing clinical trials studying the role of antioxidant supplements in the prevention of cancer and coronary artery disease. Patients frequently ask whether supplementing their diets with antioxidants is advisable. An understanding of completed and ongoing clinical research trials is helpful when addressing patient inquiries and making recommendations regarding the use of supplements.

Ample cohort and case-control epidemiologic studies have consistently yielded evidence that diets high in fruits and vegetables are associated with a low incidence of cancer. Food sources with high concentrations of antioxidant micronutrients, such as selenium, beta-carotene, vitamin C, and vitamin E, seem to confer the most protection. The presumed mechanism of this protection, as elucidated by basic laboratory research and studies in animals, is the trapping of electrically unstable free radicals, thereby preventing mutagenic oxidative damage to host cell DNA.

The strong epidemiologic evidence for dietary antioxidants has prompted enough interest to initiate well designed, large-scale, randomized, controlled clinical trials studying specific antioxidants in the form of dietary supplements. The evidence provided by these types of trials forms the basis for guidelines for use in the general population. To date, however, only two such trials have been completed, and the results have been inconsistent.

The first was a collaborative six-year study of 29,584 persons in China's Linxian County, where there is a high rate of esophagogastric cancers. In this study, significant reductions in total mortality were found in persons supplemented with beta-carotene, vitamin E, and selenium. Esophageal and gastric cancer mortality was decreased by 9% in those receiving vitamin E, beta-carotene, and selenium when compared with controls, but vitamin C had no notable effect. The study population is considered to be malnourished in these micronutrients, making the results not applicable to generally well-nourished populations such as those in the United States.

More recently, results were published of a randomized controlled trial of 29,133 Finnish male smokers who were observed for six years. The experimental groups had diets supplemented with beta-carotene or vitamin E. Not only were there no protective effects from these supplements, but those assigned to the beta-carotene group had a statistically significant rise in lung cancer risk (18%). These unexpected results raise the specter of possible detrimental effects of regular supplementation beyond the known possible risks of overdose toxicity.

If the beneficial results of the Linxian study are borne out, antioxidant supplements, if used appropriately by large populations, could substantially reduce mortality. But if the Finnish evidence is reproduced, antioxidant supplementation could actually worsen the mortality of cancer.

Fortunately, several large research trials now in progress should provide additional information when completed. These include the Carotene and Retinol Efficacy Trial (CARET) with 18,000 high-risk subjects who smoke or have histories of asbestos exposure; the French Supplementation Vitamin, Mineral, and Antioxidant study (SUVIMAX) exploring the effects of beta-carotene, vitamin E, vitamin C, selenium, and zinc on healthy adults; and the Women's Health Study, which includes 40,000 healthy US women on randomized regimens of beta-carotene, vitamin E, and low-dose aspirin. In addition, the Physicians' Health Study should be completed by the end of 1995. This 12-year trial is testing the effect of beta-carotene on cancer in 22,071 male physicians in the United States. Several of these studies will also include as end points mortality of coronary artery disease.

Health professionals may be tempted to heed the early evidence for the benefits of antioxidant supplementation by recommending that patients begin to take supplements. Unfortunately, the discrepancies in research results thus far raise the possibility of this doing more harm than good. Until more research is completed and the results analyzed, patients' interests would be better served by their health care professionals recommending with renewed effort that which we know with reasonable certainty—a healthy lifestyle includes a low-fat diet rich in fruits, vegetables, and whole grains.

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Prostate Cancer Screening—Is the Controversy Resolved?

PROSTATE cancer is the second leading cause of cancer death in men. Although some describe the dramatic recent increase in the incidence of prostate cancer as an epidemic, most attribute this rise to the growing use of prostate-specific antigen (PSA) as a screening test. This provides the setting for the current controversy in prostate cancer screening. A few groups suggest that routine PSA screening offers important health benefits. Most of the evidence argues against any screening for prostate cancer, however. In face of the intense media attention afforded the disease, it is important to examine the evidence carefully.

Serum PSA levels may be elevated in benign prostatic conditions such as prostatitis and benign prostatic hypertrophy and may be normal in those with prostate cancer. The American Cancer Society's National Prostate Cancer Detection Project, a study of 2,425 men aged 50 to 70 years without known prostatic disease, found that only 43% of cases of elevated PSA levels are associated with cancer. The controversy in the use of the PSA test stems from two different views of the data. The American Cancer Society, one of the proponents of the use of PSA testing, argues that the early detection of prostate cancer is associated with detecting cancer at an earlier stage, and treatment at an earlier stage is associated with improved survival. The society suggests that a positive test be followed by an ultrasonogram and biopsy of the prostate. One concern with this recommendation is that it is unable, because of a lack of data, to recommend the appropriate follow-up of those patients with an elevated PSA level whose biopsies and ultrasonograms fail to detect cancer. Because most elevated PSA levels are not associated with cancer, physicians who follow the American Cancer Society's guideline are in the uncomfortable position of receiving no guidance on how to manage most patients who have a positive test on PSA screening.

More important, the opponents of screening note that no evidence exists that the early detection of prostate cancer improves survival. Thus, the increased detection of prostate cancer simply increases the number of people who die with known prostate cancer and does not mean that more patients are dying of prostate cancer. In fact, the death rate from prostate cancer has remained essentially constant for the past 30 years, and the category of years of potential life lost from prostate cancer ranks 21st among that for all cancers, far behind the average. In addition, the treatment of prostate cancer is associated with substantial morbidity. Recent evidence suggests that after radical prostatectomy, 90% of patients will have some degree of impotence, two thirds will have some urinary incontinence, and as many as 2% will die of the procedure. Men treated for localized prostate cancer tend to have lower quality of life than men left untreated. The PSA screening test offers almost certain harm without evidence of benefit.

Although it is clear that men at low risk should not be screened, those at high risk—men with a family history of prostate cancer and African Americans—are left in a quandary. Their increased risk decreases the frequency of false-positive PSA tests. There is still no evidence that early detection and treatment improves survival, however, and the risk of incontinence, impotence, and death persists.

Continued research in the field will provide important information that will mold future policy decisions. Until these new data are available, the wisest course is to follow the new US Preventive Services Task Force recommendation to discuss the merits and problems of PSA testing with patients who ask about it and not to offer the test routinely.

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Early Intervention for Human Immunodeficiency Virus Disease

THE initial component in the early treatment of human immunodeficiency virus (HIV) disease is the use of antiretroviral agents. Zidovudine has been the mainstay agent to prevent HIV from destroying CD4 T-lymphocyte cells. It interferes with the replication of HIV and slows the rate of CD4 cell death. Currently, oral zidovudine therapy is recommended when a patient's blood CD4 cell count drops below 500 x 10^6 per liter (500 per mm^3). If the CD4 cell count continues to fall to nearly half the value of when zidovudine therapy was started, then other antiretroviral agents—didanosine (DDI), dideoxycytidine (zalcitabine; DDC), and stavudine (d4T)—can be added to the therapeutic regimen. This treatment strategy may soon change, however.

Recommendations presented at the 10th International Conference on AIDS [acquired immunodeficiency syndrome] in Yokohama, Japan, call for a combination therapy approach using two or more antiretroviral agents as initial treatment of patients whose CD4 cell counts reach 500 x 10^6 per liter or lower. Protease inhibitors are different pharmacologic agents compared with antiretrovirals and have recently attracted much attention in preventing the progression of HIV disease. They function to block the action of the HIV protease that produces viral proteins within the cell. Investigators in the area of HIV and AIDS care are excited about the possible benefit of combining protease inhibitors with antiretroviral therapy in preventing the decline of CD4 cell counts and the progression of HIV disease.

The second component to early intervention after antiviral therapy is disease surveillance. The U.S. Public Health Service and the American Medical Association have published similar lists of clinical symptoms, physical findings, and laboratory results that are sensitive for detecting advancing HIV disease or opportunistic infections. These clinical indicators help to identify early some of the medical problems commonly associated with HIV infection that can be treated, such as sinusitis, bronchitis, weight loss, diarrhea, thrush, anemia, granulocytopenia, cytomegaloviral retinitis, tuberculosis, toxoplasmosis, and dysplasia of the cervix. The CD4 cell count has been the most useful clinical indicator in guiding medical decisions. This marker has been used to determine the frequency of scheduled clinic visits (at most three months apart for patients with counts below 500 x 10^6 per liter) and when to begin prophylactic therapy against *Pneumocystis carinii* pneumonia and disseminated *Mycobacterium avium* complex (below 200 x 10^6 per liter and 100 x 10^6 per liter, respectively). Differences in health status have been observed among patients with similar CD4 cell counts, however. This has been attributed to differences in the amount of viral load within the lymphatic systems of patients. The polymerase chain reaction (PCR) assay quantitates the total amount of virus in the body. This assay is considered superior to CD4 cell counts in correlating clinical status, the progression of HIV disease, and the clinical response to therapy. Once PCR becomes commercially available, it is anticipated to replace the CD4 cell count as the primary laboratory measure for HIV disease.

The final component for effective early intervention is disease prevention. The Centers for Disease Control and Prevention has recently published guidelines for vaccinating persons with HIV infection against pneumonia, influenza, hepatitis, and *Haemophilus influenzae.* Investigators also propose new strategies in early intervention regarding mental health wellness, proper nutrition, dental hygiene, fitness exercise, stress reduction, safe sex, substance abuse abstinence, and smoking cessation. The aims of these recommendations and strategies are to equip primary care physicians with the knowledge and information to responsibly manage the health care of HIV-infected patients.

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Angiotensin-Converting Enzyme Inhibitors in Congestive Heart Failure

ANGIOTENSIN-CONVERTING enzyme (ACE) inhibitors, a remarkable class of drugs developed from the initial discovery of molecules with ACE-inhibiting properties in the venom of Brazilian pit vipers, have been available for commercial use in the United States for more than a decade. First used for treating hypertension, it soon became appreciated that ACE inhibitors were also highly effective in the treatment of heart failure. In fact, much data exist to show that ACE inhibitors significantly reduce mortality in patients with moderate and severe heart failure, improve functional capacity, and prevent hospital admissions. Moreover, ACE inhibitors have been shown to decrease the development of symptomatic heart failure in patients with asymptomatic (New York Heart Association class I) disease. Despite these well-documented benefits, fewer than 50% of patients with heart failure are currently treated with ACE inhibitors.

Surveys of clinicians providing care to patients with heart failure suggest that physicians are reluctant to use ACE inhibitors in these patients because of the fear of causing hypotension. For this reason, ACE inhibitors are often reserved only for those patients with heart failure and concomitant hypertension. In the studies of the treatment of heart failure with ACE inhibitors, however, notable hypotension was distinctly unusual. Because of the profound clinical and economic benefits of ACE-inhibitor therapy in these cases, virtually all patients with heart failure should be treated, and they should be treated with moderate doses, such as captopril, 50 mg three times a day, if tolerated. Patients in whom the use of ACE inhibitors is contraindicated include those with a history of allergy or a severe reaction to ACE inhibitors, those with refractory hyperkalemia (potassium level > 5.5 mmol/L), and those with symptomatic hypotension. Patients with renal insufficiency (creatinine level > 265 μmo/L [>3.0 mg per dL]) and those with systolic blood pressures less than 90 mm of mercury may be treated with ACE inhibitors, but they have a higher rate of complications and must be monitored carefully, often with a consulting cardiologist.

Angiotensin-converting enzyme inhibitors are thought to have a "class action" in patients with heart failure; therefore, no single agent is preferred over another. In patients considered to be at high risk for complications from ACE inhibitor therapy, institute treatment with a small dose of a short-acting drug (such as captopril, 6.25 mg) and observe the patient carefully for several hours. Patients taking diuretics should be examined for evidence of hypovolemia, and fluid and electrolyte disorders, if present, should be corrected before beginning ACE-inhibitor therapy. Patients should be seen in two days and at one week, and renal function, serum potassium levels, and blood pressures should be observed carefully. The ACE-inhibitor dosage should be increased slowly at two- to three-week intervals.

Angiotensin-converting enzyme inhibitors in the treatment of heart failure should be thought of not only as antihypertensive agents. Current evidence shows that they have a powerful effect on the myocardium at the cellular level and possibly retard the development of left ventricular hypertrophy. The vast majority of patients with heart failure are candidates for treatment with ACE inhibitors. Moreover, all patients suffering a myocardial infarction except those in whom it is the first infarction and the infarction is inferior wall, small, nontransmural, and uncomplicated—should have their ejection fraction determined by echocardiogram or radionuclide ventriculogram. All those with ejection fractions below 40% should be treated with ACE inhibitors, even in the absence of symptoms or signs of heart failure.

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Cryptorchidism

CRYPTORCHIDISM, from the Greek "hidden testes," is the most common urologic problem of neonates and young children. The estimated prevalence of cryptorchidism is about 3% among full-term neonates; among premature infants and those with low birth weights, it has been reported to be as high as 30%. The problem affects the right testis more frequently.

The consequences of a permanently undescended testis are potentially deleterious. Besides diminished fertility and psychological trauma, an undescended testis is the major risk factor for testicular cancer. Persons with undescended testes have a 22 times higher risk for testicular cancer than those with normal testes, and the risk for cancer in the contralateral descended testicle is also higher than in normal testes. Seminoma, the most common tumor, usually manifests during the second or third decade of life.

Careful examination of an infant's genitalia is essential. If a testis is not palpable in the scrotum, the inguinal canal should be investigated by palpating it from the internal to the external ring. The position of a palpable testicle within the canal must be noted and an attempt made to "milk" it down toward the scrotum. If the testicle can be brought into the scrotum manually, then it represents a retractile testis, most of which are at the suprascrotal area. Another helpful maneuver to bring the testis down is to examine the infant with the ipsilateral leg crossed, which relaxes the cremasteric muscle and allows the testicle to descend into the scrotum.

If no testicle is palpable, the challenge is to locate it. Several studies are available for this purpose—gonadotropin stimulation, venography of the spermatic vessels, thallium imaging, abdominal ultrasonography, computed tomography (CT), and magnetic resonance imaging (MRI). Abdominal ultrasonography is most sensitive when the testis is next to or along the inguinal canal and is less sensitive in locating a testis that is in the abdomen. Even though CT and MRI are both sensitive techniques, MRI exposes the infant to no radiation and appears to be superior at evaluating cord structure. Venography of the gonadal vessels is useful but is technically difficult, invasive, and involves radiation exposure. Laparoscopy is the definitive method of locating an undescended testis; it provides direct visualization of the anatomy and information for planning surgical treatment.

In most cases, the natural history of an undescended testis is spontaneous descent, usually occurring within the first year of life and, in most cases, within the first three months of life. If no descent is observed by about one year of age, urologic consultation is indicated.

Therapy with human chorionic gonadotropin (hCG) hormone has been effective. The success rate is better for bilateral than unilateral undescended testes: as high as 40% and 30%, respectively. Treatment regimens vary but usually involve administering hCG every other day or twice a week for two to five weeks.

Orchiopexy is strongly advised for impalpable testes when hormonal therapy fails or when a mechanical or anatomic cause of cryptorchidism is suspected. Early surgical treatment is advocated in view of the possible beneficial effect on fertility and the possible decreased risk of cancer. Several surgical techniques are used. All involve isolating and ligating the hernial sac, freely mobilizing the cord with its vascular and vasal components, and fixating in the scrotum.

The clinical evaluation of neonates with an undescended testis must always include frequent discussions with the parents—taking time to answer their questions, providing objective information, presenting and explaining alternative therapies, and reducing parental anxiety whenever possible. Primary care physicians have an important role in the care of children with cryptorchidism.

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Neonatal Group B Streptococcus Infection—Recommendations for Screening and Prophylaxis

GROUP B streptococcus is the most common infectious cause of neonatal morbidity and mortality in the United States, causing disease in 12,000 to 15,000 newborns each year. The maternal cost is extremely high as well, with 50,000 cases of maternal infections yearly.

Of the 15% to 40% of women who are carriers of group B streptococcus and colonized in the gastrointestinal tract and vagina, 50% give birth to infants colonized with this organism, with 1% to 2% of these neonates clinically infected. The mortality for neonates with early-onset (the first week of life) group B streptococcus infection is 15% or higher. Risk factors identified by the American Academy of Pediatrics (AAP) or the American College of Obstetricians and Gynecologists (ACOG) that increase the infection or attack rate in neonates are prematurity (labor before 37 weeks), premature rupture of membranes, maternal fever, prolonged rupture of membranes (>18 hours), a previously infected child (ACOG only), and multiple births (AAP only).

A second syndrome, late-onset group B streptococcus infection, is seen in 0.5 to 1 per 1,000 live births. The patient usually is diagnosed with sepsis or meningitis, which may be due to either a maternal or community (nosocomial) infection.

To lower the rate of early-onset neonatal group B streptococcal infection from the current rate of three per 1,000 live births, multiple screening and treatment protocols have been recommended. Formulating screening and treatment policies is difficult because of a number of factors. Identifying and treating women at a high risk would prevent only a portion of the neonatal infections. The colonization of women by group B streptococcus is a transient phenomenon; a woman with a positive culture at 28 weeks may be culture-negative at term, and vice versa. In addition, obstetrics and neonatology are such emotionally and liability-charged areas, with perfect outcomes now expected and demanded, that even the Trial Lawyers of America have developed their own "guidelines."

Because of these factors, a consensus on screening and treatment guidelines has yet to be reached. At present, an AAP policy statement (RE9261) recommends chemoprophylaxis for those maternal carriers who have identified risk factors. In contrast, ACOG argues against universal screening, but does recommend intrapartum antibiotic chemoprophylaxis for all patients with identified risk factors, regardless of culture results. When consideration is given to the difficulties in obtaining universal cultures, the inability of early culture results to predict intrapartum maternal colonization; the unavailability of an accurate, reliable, and rapid detection method; and the understanding that the universal eradication of group B streptococcus disease is not currently possible, the ACOG recommendation of intrapartum treatment based solely on risk factors seems to be a realistic, practical, and cost-effective means of decreasing the incidence of group B streptococcus disease. For those interested in following this issue, a Centers for Disease Control and Prevention consensus statement is expected later in 1995.

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Advances in Immunization

IMMUNIZATION schedules are changing so rapidly that many official record cards are out of date by the time they are distributed. Fortunately, the changes have simplified immunization schedules while actually decreasing the number of injections through the use of combined vaccines.

The long-awaited varicella vaccine has just arrived, and recently the timing changed for the live oral poliovirus vaccine (OPV) and the measles-mumps-rubella (MMR) vaccine. Other advances are the recommendations for universal immunization against the hepatitis B virus, the acellular pertussis vaccine (aP), and the second MMR.

The varicella vaccine to prevent chickenpox was released in May 1995, and the American Academy of Family Physicians and the American Academy of Pediatrics already recommend it for general use. Administer one dose between age 12 months and 12 years or two doses eight weeks apart for patients 13 years or older who have not already had varicella infection. As a live vaccine, it has the potential for long-lasting and has demonstrated only minimal risk of person-to-person transmission.

The Advisory Committee on Immunization Practices of the United States Public Health Service now recommends that the third dose of OPV, previously removed from the six-month schedule, be resumed and that the 18-month dose be deleted. The earlier dose is equally efficacious and may help ensure adequate immunization at a time when parents are most attentive about physician visits and the child is simultaneously receiving other immunizations. The final preschool dose at four to six years of age remains to round out a four-dose series at two, four, and six months and four to six years of age.

The first and only dose of MMR was traditionally given at age 15 months. Physicians have always had the option to administer the MMR as early as six months of age when outbreaks occur. If given at 12 months of age or older, it was not necessary to repeat the dose at 15 months. The logical progression of this thinking has resulted in the current recommendation to immunize the general population starting at 12 months. After multiple measles outbreaks occurred at college campuses in the 1980s, the booster dose of MMR was advised at four to six years or 11 to 12 years of age. The preschool timing seems preferable because so few middle-school-aged students return for routine well-child care compared with the mandatory preschool physical examination.

The incidence of the vertical transmission of hepatitis B virus can be decreased by screening women during their pregnancy. Babies born to carriers of the virus should receive hepatitis B immune globulin, and the hepatitis B virus vaccination should be started as soon as possible after birth. All other infants should be immunized or immunization arranged for before they are discharged from the hospital. The second dose should be given at least one month later, typically at the two-month well-child visit or at the vaccination clinic. The third dose is due at six months. Booster doses are not yet recommended, but because of waning levels of immunity, they may be indicated every 10 years, similar to tetanus toxoid boosters. We hope that a combined hepatitis B virus and tetanus toxoid booster will surface if this is the case.

Concern regarding reactions to the pertussis component of the diphtheria and tetanus toxoids and pertussis (DTP) vaccine has spawned the development of the acellular pertussis (aP) vaccine. The aP vaccine decreases the incidence of local reactions, fever, and irritability, but rare occurrences of temporally related neurologic events have been reported. Unfortunately, it has not yet been approved for use before the 15-month dose. It is available, combined with diphtheria and tetanus toxoids, as the DTaP. Soon it may be approved to be combined with the *Haemophilus influenzae* type b (HIB) vaccine to reduce the number of injections at the 15-month visit, the same way that combining the DTP and HIB has shaved off a separate injection at two, four, and six months of age.

Risks and benefits of immunizations need to be considered on an individual basis. Patients who are immunocompromised or who have family members who are immunocompromised, patients with allergies to eggs, and those with underlying neurologic disorders require special care. A suboptimal vaccine is available for tuberculosis, but if multiple drug-resistant tuberculosis outbreaks continue, it or an improved vaccine may see widespread use.

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Hepatitis B Immunization for Adolescents

IN 1991 and 1992, the Centers for Disease Control and Prevention (CDC), the American Academy of Pediatrics, and the American Academy of Family Physicians presented new guidelines for the prevention of hepatitis B. These guidelines propose a broad-based immunization program that includes all newborns and others at high risk, including adolescents. The initial announcement was met with a flurry of controversy as parents and providers balked at adding three more immunizations to an already-crowded newborn immunization schedule.

This hesitancy was not based on a lack of respect for the disease. Hepatitis B causes substantial morbidity and mortality in this country. Each year 300,000 new cases are reported, with about 5% of these patients becoming a long-term carrier, increasing the risk of transmissibility and the development of hepatocellular carcinoma. The chances of the chronic carrier state developing is highest when the infection occurs in the newborn period; as many as 90% of infected newborns become carriers. Still, the disease is rare in childhood, and only about 1% of the reported cases occurs in children younger than 10 years.

A concern about the recommendations involves the lack of emphasis on adolescent immunization. Although the initial 22-page CDC recommendation included a statement on adolescents, all of the educational material and most of the press coverage focused on newborns. Adolescents are an important group, however, with about 25% of hepatitis B reported each year occurring between the ages of 10 and 20 years and about 5% of these teens becoming carriers. For these reasons, more teens than newborns become carriers each year, even though newborns have a higher conversion rate. Adolescents are important not only because of these health problems but also because they engage in more behaviors that transmit the disease. Any program that focuses on preventing disease in adolescents thus immediately decreases the risk of transmission.

Serious problems with adolescent immunization are cost and compliance. Adolescents require a full dose of the vaccine, which increases costs. In addition, the vaccine requires three separate immunizations. This increases costs (presumably a physician visit accompanies most of these immunizations) and decreases compliance (newborns receive other immunizations at the same time so additional trips are not needed).

Recent advances address the two problems with adolescent immunization programs. First, a growing number of insurance companies now cover the immunization for any patient younger than 20 years. This lowers the cost barrier. In addition, the CDC is conducting demonstration projects to determine the feasibility of a school-based immunization program. This would not only decrease the total costs of administering the vaccine, but would increase compliance because three visits to a physician would not be necessary.

Hepatitis B remains a serious health concern. Although the immunization of newborns helps to decrease the risk in the first decade of life, such a program has a minimal effect on the immediate problem because so few young children get the disease. The recent move to develop cost-effective methods for immunizing large numbers of adolescents will go far in ensuring that this high-risk group is protected. Until these programs are implemented, physicians caring for adolescents should offer this group the immunization along with advice regarding sexual abstinence or safer sex practices and the avoidance of illicit drugs.

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Breast Cancer in Pregnancy—A Diagnostic and Therapeutic Challenge

PREGNANCY-associated breast cancer, as defined by carcinoma of the breast diagnosed during pregnancy or within the first postpartum year, is the second most common malignant neoplasm in pregnancy after cervical cancer. Because women are delaying childbearing and breast cancer is occurring at an earlier age, the incidence is expected to increase. Of breast cancer patients younger than 30 years, 25% have been pregnant within the past year. The incidence of pregnancy-associated breast cancer is between one in 3,000 and one in 10,000 pregnancies.

Although these women have extensive contact with health care professionals, the diagnosis is usually delayed. Only a small percentage of patients are diagnosed and treated during pregnancy. The majority (80%) of patients are diagnosed within 12 weeks of delivery, but 50% of these patients had a mass noted during the pregnancy. The mean size of the tumor is 3.5 cm.

Unfortunately, making the diagnosis during pregnancy is fraught with difficulties. Normal changes associated with pregnancy, including the enlargement of the lobules, increases in the stroma, and hyperemia, serve to obscure the mass during pregnancy and breast-feeding. Ultrasonography should be used to identify cysts and galactoceles and to locate a discrete mass. Mammography, a mainstay of breast cancer surveillance, is of little assistance during pregnancy and lactation because of normal changes in the breast.

Biopsy should be considered the mainstay of diagnosis. In pregnant patients, open biopsy under local anesthesia should be done whenever possible. A fetal death rate of one per 134 was reported for breast biopsy done under general anesthesia. In lactating patients, biopsy has a high complication rate. Lactation should be stopped before an open biopsy. The use of bromocriptine or binding with ice packs should be considered. Risks include infection, which can be reduced by the use of antibiotics (which are excreted into the breast milk), and milk fistulas, which occur more frequently with lesions that are centrally located. A fine-needle aspirate may be extremely difficult to assess because of the cytologic changes that occur with lactation.

During pregnancy, staging may be difficult. Chest radiographs may be obtained, as may a computed tomographic scan of the head if there are suggestive neurologic findings. Computed tomography of the abdomen is contraindicated in the first or second trimester, and bone scans are contraindicated throughout pregnancy.

Whereas breast preservation is generally always considered when discussing treatment options with a woman with breast cancer, modified radical mastectomy is the only surgical option available during pregnancy. Breast preservation is not an option during pregnancy due to morbidity associated with other treatment plans. Radiation therapy is not an option due to the scatter that occurs from the mother's bones and organs to the fetus. Chemotherapy, which generally crosses the fetal-placental barrier and affects rapidly dividing cells, may lead to a fetal malformation (12.7% risk) and is contraindicated during the first 15 weeks of pregnancy. Chemotherapy may be used after 15 weeks of gestation, but may lead to a low birth weight (40% risk) and possible developmental delay. Teratogenicity, such as lymphoma and leukemia, has been reported.

The termination of pregnancy historically has been encouraged to improve outcome, but recent series fail to show any additional benefit. The need for chemotherapy or radiation therapy may lead to a consideration of termination.

Breast cancer found during pregnancy has had a poor prognosis. Studies demonstrate that the stage for survival rates is the same for pregnant and nonpregnant patients. Unfortunately, breast cancer found during pregnancy is often in an advanced stage. The presence or absence of affected nodes is an important prognostic factor. Five-year survival rates have been found to be 82% for patients with normal nodes compared with 47% for patients with cancerous nodes. Because of the aggressive nature of breast cancer during pregnancy, modified radical mastectomy for potentially curable disease should not be delayed, especially in the third trimester.

Physicians and nurse midwives must do routine breast examinations during early prenatal care. Pregnancy is generally a joyous time for a woman and her family, but the diagnosis of breast cancer irrevocably alters a woman's life. Especially during pregnancy, the use of social support systems is critical to assure appropriate care of the newborn and to increase the likelihood that the family will survive the health crisis.

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MORBIDITY AND MORTALITY WEEKLY REPORT

Lyme Disease—United States, 1994

FOR surveillance purposes, Lyme disease (LD) is defined as the presence of an erythema migrans rash 5 cm in diameter or laboratory confirmation of infection with *Borrelia burgdofferi* and at least one objective sign of musculoskeletal, neurologic, or cardiovascular disease.[1] In 1982, CDC initiated surveillance for LD, and in 1990, the Council of State and Territorial Epidemiologists adopted a resolution that designated LD a nationally notifiable disease. This report summarizes surveillance data for LD in the United States during 1994.

In 1994, 13,083 cases of LD were reported to CDC by 44 state health departments, 4,826 (58%) more than the 8,257 cases reported in 1993 (Fig. 1). As in previous years, most cases were reported from the northeastern and north-central regions (Fig. 2). The overall incidence of reported LD was 5.2 per 100,000 population. Eight states reported incidences of more than 5.2 per 100,000 (Connecticut, 62.2; Rhode Island, 47.2; New York, 29.2; New Jersey, 19.6; Delaware, 15.5; Pennsylvania, 11.9; Wisconsin, 8.4; and Maryland, 8.3); these states accounted for 11,476 (88%) of nationally reported cases. Six states (Alaska, Arizona, Hawaii, Mississippi, Montana, and North Dakota) reported no cases. Reported incidences were 100 per 100,000 in 15 counties in Connecticut, Maryland, Massachusetts, New Jersey, New York, Pennsylvania, and Wisconsin; the incidence was highest in Nantucket County, Massachusetts (1,197.6).

Six northeastern states accounted for 95% of the increase in reported cases for 1994: Maryland, New Jersey, New York, Rhode Island, Connecticut, and Pennsylvania. Reported cases increased by 218 cases (121%) in Maryland, 747 cases (95%) in New Jersey, 2,382 cases (85%) in New York, 199 cases (73%) in Rhode Island, 680 cases (50%) in Connecticut, and 353 cases (33%) in Pennsylvania. Reported cases remained stable in the states with endemic disease in the north-central region (Minnesota and Wisconsin) and decreased in California (36%).

Males and females were nearly equally affected in all age groups except those aged 10-19 years (males: 55%) and those aged 30-39 years (females: 56%).

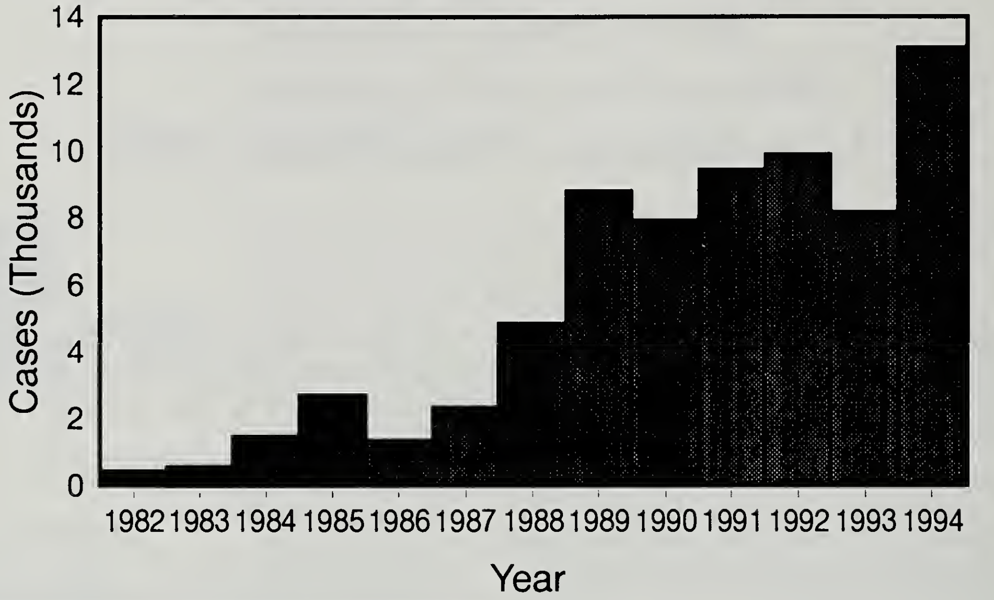
Reported by: State health departments. Bacterial Zoonoses Branch Division of Vector-Borne Infectious Diseases, National Center for Infectious Diseases, CDC.

Editorial Note: LD is the most commonly reported vector-borne infectious disease in the United States. Infection with *B. burgdofferi* results from exposure to nymphal and adult forms of tick vectors of the genus *Ixodes: I. scapularis* (black-legged tick) in the northeastern and upper north-central United States, and *I. pacificus* (western black-legged tick) in the Pacific coastal states.

Risk for exposure to *B. burgdofferi* is strongly associated with the prevalence of tick vectors and the proportion of those ticks that carry *B. burgdofferi.* The risk for exposure may be highly focal[2] and can differ substantially between adjacent states, counties, communities, and areas on the same residential property.[3,4] In northeastern states with endemic disease, the infection rate of nymphal *I. scapularis* ticks with *B. burgdofferi* is commonly 20%-35%, and even modest changes in tick numbers can substantially affect the risk for exposure to infected vectors.[5] In one area of Connecticut where approximately 15% of *I. scapularis* are infected with *B. burgdorferi,* changes in the annual incidence of LD have paralleled changes in *I. scapularis* densities (M. Cartter, Connecticut Department of Health and Addiction Services, K. Stafford, Connecticut Agricultural Experimental Station, personal communication, 1995). In 1994, tick surveillance in the Northeast indicated increases over previous years in vector tick density. For example, in one site in Westchester County, New York, population density of *I. scapularis* nymphs increased 400% from 0.4 nymphs per square meter in 1993 to 1.6 nymphs per square meter in 1994 (T. Daniels, Fordham University, R. Falco, Westchester County Department of Health, personal communication, 1995), and in Rhode Island, nymphal *I. scapularis* density measured at sites throughout the state increased 158% from 1993 to 1994 (T. Mather, University of Rhode Island, personal communication, 1995).

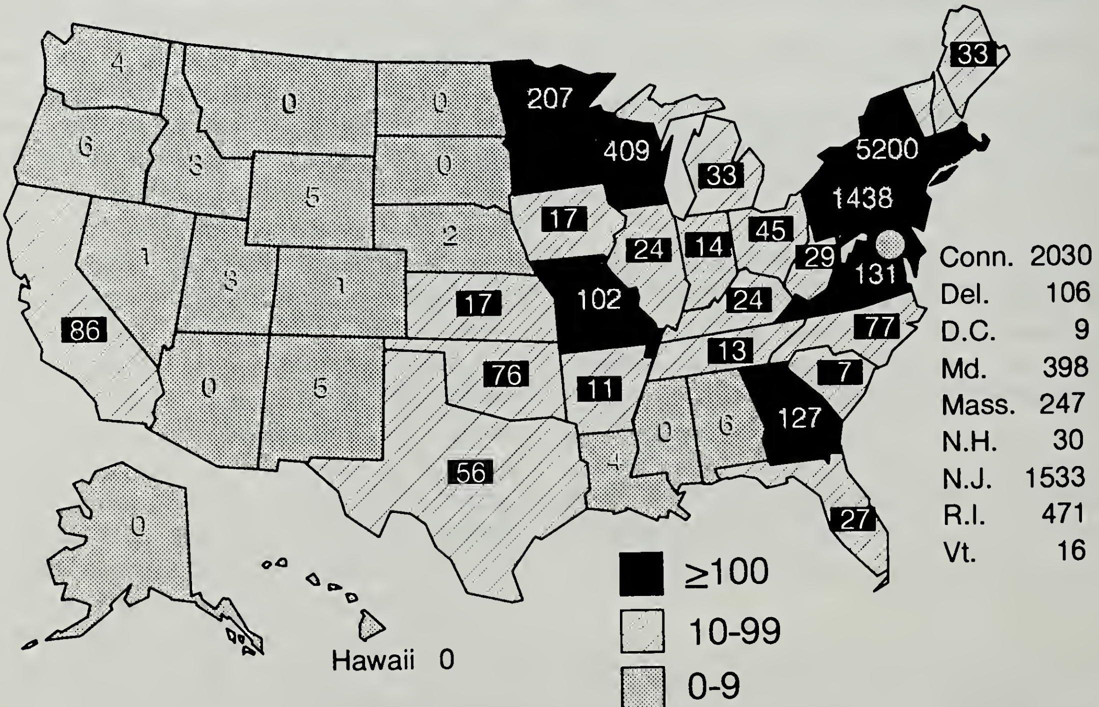
Reprinted from *Morbidity and Mortality Weekly Report,* June 1995, vol 44, no. 24.

Figure 1.—Number of reported Lyme disease cases, by year—United States 1982-1994.



Ascertainment of LD cases based only on passive surveillance may result in underreporting of cases.[6,7] Because of this and in accordance with recommendations for control of emerging diseases,[8] some states in which LD is endemic have expanded surveillance efforts. In 1994, the New York State Department of Health augmented surveillance with additional staff, intensified active case detection, and validated some cases reported in the previous year; these efforts probably accounted for some of the increase in reported cases for New York in 1994 (D. White, New York State Department of Health, personal communication, 1995). Active surveillance, with support

Figure 2.—Number of reported Lyme disease cases, by state—United States, 1994.



Conn.	2030
Del.	106
D.C.	9
Md.	398
Mass.	247
N.H.	30
N.J.	1533
R.I.	471
Vt.	16

from CDC, is conducted by health departments in Connecticut, Michigan, Minnesota, New Jersey, New York, Oregon, Rhode Island, and West Virginia.

The risk for infection among persons residing in or visiting areas where LD is endemic can be reduced through avoidance of known tick habitats; other preventive measures include wearing long pants and long-sleeved shirts, tucking pants into socks, applying tick repellents containing N,N-diethyl-m-toluamide ("DEET") to clothing and/or exposed skin according to manufacturer's instructions, checking thoroughly and regularly for ticks, and promptly removing any attached ticks. Acaracides containing permethrin kill ticks on contact and can provide further protection when applied to clothing, but are not approved for use on skin. Additional information about LD is available from state and local health departments, from CDC's Voice Information System, telephone (404) 332-4555; from CDC's Bacterial Zoonoses Branch, Division of Vector-Borne Infectious Diseases, National Center for Infectious Diseases, telephone (970) 221-6453; and from the Office of Communications, National Institute of Allergy and Infectious Diseases, National Institutes of Health, telephone (301) 496-5717.

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References: 1. Pitt B, Mancini J, Ellis SG, et al. Pravastatin Limitation of Atherosclerosis in the Coronary Arteries (PLAC I). *J Am Coll Cardiol.* In Press. **2.** Crouse JR, Byington P, Bond MG, et al. Pravastatin, Lipids and Atherosclerosis in the Carotid Arteries (PLAC II). *Am J Cardiol.* 1995;75:455-459.

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It is recommended that liver function tests be performed before the initiation of treatment, at 6 and 12 weeks after initiation of therapy or elevation in dose, and periodically thereafter (e.g., semiannually). Patients who develop increased transaminase levels should be monitored with a second liver function evaluation to confirm the finding and be followed thereafter with frequent liver function tests until the abnormality(ies) return to normal. Should an increase in AST or ALT of three times the upper limit of normal or greater persist, withdrawal of pravastatin therapy is recommended.

Active liver disease or unexplained transaminase elevations are contraindications to the use of pravastatin (see **CONTRAINDICATIONS**). Caution should be exercised when pravastatin is administered to patients with a history of liver disease or heavy alcohol ingestion (see **CLINICAL PHARMACOLOGY**: **Pharmacokinetics/Metabolism**). Such patients should be closely monitored, started at the lower end of the recommended dosing range, and titrated to the desired therapeutic effect.

Skeletal Muscle: Rare cases of rhabdomyolysis with acute renal failure secondary to myoglobinuria have been reported with pravastatin and other drugs in this class. Uncomplicated myalgia has also been reported in pravastatin-treated patients (see **ADVERSE REACTIONS**). Myopathy, defined as muscle aching or muscle weakness in conjunction with increases in creatine phosphokinase (CPK) values to greater than 10 times the upper normal limit, was rare (< 0.1%) in pravastatin clinical trials. Myopathy should be considered in any patient with diffuse myalgias, muscle tenderness or weakness, and/or marked elevation of CPK. Patients should be advised to report promptly unexplained muscle pain, tenderness or weakness, particularly if accompanied by malaise or fever. **Pravastatin therapy should be discontinued if markedly elevated CPK levels occur or myopathy is diagnosed or suspected. Pravastatin therapy should also be temporarily withheld in any patient experiencing an acute or serious condition predisposing to the development of renal failure secondary to rhabdomyolysis, e.g., sepsis; hypotension; major surgery; trauma; severe metabolic, endocrine, or electrolyte disorders; or uncontrolled epilepsy.**

The risk of myopathy during treatment with another HMG-CoA reductase inhibitor is increased with concurrent therapy with either erythromycin, cyclosporine, niacin, or fibrates. However, neither myopathy nor significant increases in CPK levels have been observed in three reports involving a total of 100 post-transplant patients (24 renal and 76 cardiac) treated for up to two years concurrently with pravastatin 10-40 mg and cyclosporine. Some of these patients also received other concomitant immunosuppressive therapies. In one single-dose study, pravastatin levels were found to be increased in cardiac transplant patients receiving cyclosporine. Further, in clinical trials involving small numbers of patients who were treated concurrently with pravastatin and niacin, there were no reports of myopathy. Also, myopathy was not reported in a trial of combination pravastatin (40 mg/day) and gemfibrozil (1200 mg/day), although 4 of 75 patients on the combination showed marked CPK elevations versus one of 73 patients receiving placebo. There was a trend toward more frequent CPK elevations and patient withdrawals due to musculoskeletal symptoms in the group receiving combined treatment as compared with the groups receiving placebo, gemfibrozil, or pravastatin monotherapy (see **PRECAUTIONS**: **Drug Interactions**). **The use of fibrates alone may occasionally be associated with myopathy. The combined use of pravastatin and fibrates should be avoided unless the benefit of further alterations in lipid levels is likely to outweigh the increased risk of this drug combination.**

PRECAUTIONS

General: Pravastatin may elevate creatine phosphokinase and transaminase levels (see **ADVERSE REACTIONS**). This should be considered in the differential diagnosis of chest pain in a patient on therapy with pravastatin.

Homozygous Familial Hypercholesterolemia. Pravastatin has not been evaluated in patients with rare homozygous familial hypercholesterolemia. In this group of patients, it has been reported that HMG-CoA reductase inhibitors are less effective because the patients lack functional LDL receptors.

Renal Insufficiency. A single 20 mg oral dose of pravastatin was administered to 24 patients with varying degrees of renal impairment (as determined by creatinine clearance). No effect was observed on the pharmacokinetics of pravastatin or its 3α-hydroxy isomeric metabolite (SQ 31,906). A small increase was seen in mean AUC values and half-life ($t\ 1/2$) for the inactive enzymatic ring hydroxylation metabolite (SQ 31,945). Given this small sample size, the dosage administered, and the degree of individual variability, patients with renal impairment who are receiving pravastatin should be closely monitored.

Information for Patients: Patients should be advised to report promptly unexplained muscle pain, tenderness or weakness, particularly if accompanied by malaise or fever.

Drug Interactions: *Immunosuppressive Drugs, Gemfibrozil, Niacin (Nicotinic Acid), Erythromycin:* See **WARNINGS**: **Skeletal Muscle**.

Antipyrine: Since concomitant administration of pravastatin had no effect on the clearance of antipyrine, interactions with other drugs metabolized via the same hepatic cytochrome isozymes are not expected.

Cholestyramine/Colestipol: Concomitant administration resulted in an approximately 40 to 50% decrease in the mean AUC of pravastatin. However, when pravastatin was administered 1 hour before or 4 hours after cholestyramine or 1 hour before colestipol and a standard meal, there was no clinically significant decrease in bioavailability or therapeutic effect. (See **DOSAGE AND ADMINISTRATION**: **Concomitant Therapy**.)

Warfarin: In a study involving 10 healthy male subjects given pravastatin and warfarin concomitantly for 6 days, bioavailability parameters at steady state for pravastatin (parent compound) were not altered. Pravastatin did not alter the plasma protein-binding of warfarin. Concomitant dosing did increase the AUC and Cmax of warfarin but did not produce any changes in its anticoagulant action (i.e., no increase was seen in mean prothrombin time after 6 days of concomitant therapy). However, bleeding and extreme prolongation of prothrombin time has been reported with another drug in this class. Patients receiving warfarin-type anticoagulants should have their prothrombin times closely monitored when pravastatin is initiated or the dosage of pravastatin is changed.

Cimetidine: The $\text{AUC}_{0\text{-}12\text{hr}}$ for pravastatin when given with cimetidine was not significantly different from the AUC for pravastatin when given alone. A significant difference was observed between the AUC's for pravastatin when given with cimetidine compared to when administered with antacid.

Digoxin: In a crossover trial involving 18 healthy male subjects given pravastatin and digoxin concurrently for 9 days, the bioavailability parameters of digoxin were not affected. The AUC of pravastatin tended to increase, but the overall bioavailability of pravastatin plus its metabolites SQ 31,906 and SQ 31,945 was not altered.

Cyclosporine: Some investigators have measured cyclosporine levels in patients on pravastatin, and to date, these results indicate no clinically meaningful elevations in cyclosporine levels. In one single-dose study, pravastatin levels were found to be increased in cardiac transplant patients receiving cyclosporine.

Gemfibrozil: In a crossover study in 20 healthy male volunteers given concomitant single doses of pravastatin and gemfibrozil, there was a significant decrease in urinary excretion and protein binding of pravastatin. In addition, there was a significant increase in AUC, Cmax, and Tmax for the pravastatin metabolite SQ 31,906. Combination therapy with pravastatin and gemfibrozil is generally not recommended.

In interaction studies with *aspirin, antacids* (1 hour prior to PRAVACHOL (pravastatin sodium)), *cimetidine, nicotinic acid,* or *probucol*, no statistically significant differences in bioavailability were seen when PRAVACHOL was administered.

Other Drugs: During clinical trials, no noticeable drug interactions were reported when PRAVACHOL was added to: diuretics, antihypertensives, digitalis, ACE inhibitors, calcium channel blockers, beta-blockers, or nitroglycerin.

Endocrine Function: HMG-CoA reductase inhibitors interfere with cholesterol synthesis and lower circulating cholesterol levels and, as such, might theoretically blunt adrenal or gonadal steroid hormone production. Results of clinical trials with pravastatin in males and post-menopausal females were inconsistent with regard to possible effects of the drug on basal steroid hormone levels. In a study of 21 males, the mean testosterone response to human chorionic gonadotropin was significantly reduced ($p < 0.004$) after 16 weeks of treatment with 40 mg of pravastatin. However, the percentage of patients showing a ≥ 50% rise in plasma testosterone after human chorionic gonadotropin stimulation did not change significantly after therapy in these patients. The effects of HMG-CoA reductase inhibitors on spermatogenesis and fertility have not been studied in adequate numbers of patients. The effects, if any, of pravastatin on the pituitary-gonadal axis in pre-menopausal females are unknown. Patients treated with pravastatin who display clinical evidence of endocrine dysfunction should be evaluated appropriately. Caution should also be exercised if an HMG-CoA reductase inhibitor or other agent used to lower cholesterol levels is administered to patients also receiving other drugs (e.g., ketoconazole, spironolactone, cimetidine) that may diminish the levels or activity of steroid hormones.

CNS Toxicity: CNS vascular lesions, characterized by perivascular hemorrhage and edema and mononuclear cell infiltration of perivascular spaces, were seen in dogs treated with pravastatin at a dose of 25 mg/kg/day, a dose that produced a plasma drug level about 50 times higher than the mean drug level in humans taking 40 mg/day. Similar CNS vascular lesions have been observed with several other drugs in this class.

A chemically similar drug in this class produced optic nerve degeneration (Wallerian degeneration of retinogeniculate fibers) in clinically normal dogs in a dose-dependent fashion starting at 60 mg/kg/day, a dose that produced mean plasma levels about 30 times higher than the mean drug level in humans taking the highest recommended dose (as measured by total enzyme inhibitory activity). This same drug also produced vestibulocochlear Wallerian-like degeneration and retinal ganglion cell chromatolysis in dogs treated for 14 weeks at 180 mg/kg/day, a dose which resulted in a mean plasma drug level similar to that seen with the 60 mg/kg/day dose.

Carcinogenesis, Mutagenesis, Impairment of Fertility: In a 2-year study in rats fed pravastatin at doses of 10, 30, or 100 mg/kg body weight, there was an increased incidence of hepatocellular carcinomas in males at the highest dose (
Although rats were given up to 125 times the human dose (HD) on a mg/kg body weight basis, serum drug levels
6 to 10 times higher than those measured in humans given 40 mg pravastatin as measured by AUC.

The oral administration of 10, 30, or 100 mg/kg (producing plasma drug levels approximately 0.5 to 5.0 time
drug levels at 40 mg) of pravastatin to mice for 22 months resulted in a statistically significant increase in the in
malignant lymphomas in treated females when all treatment groups were pooled and compared to controls ($p <$
incidence was not dose-related and male mice were not affected.

A chemically similar drug in this class was administered to mice for 72 weeks at 25, 100, and 400 mg/kg bo
which resulted in mean serum drug levels approximately 3, 15, and 33 times higher than the mean human serum
centration (as total inhibitory activity) after a 40 mg oral dose. Liver carcinomas were significantly increased in
females and mid- and high-dose males, with a maximum incidence of 90 percent in males. The incidence of adeno
liver was significantly increased in mid- and high-dose females. Drug treatment also significantly increased the in
lung adenomas in mid- and high-dose males and females. Adenomas of the eye Harderian gland (a gland of
rodents) were significantly higher in high-dose mice than in controls.

No evidence of mutagenicity was observed *in vitro*, with or without rat liver metabolic activation, in the followi
microbial mutagen tests, using mutant strains of *Salmonella typhimurium* or *Escherichia coli*; a forward mutatio
L5178Y TK +/− mouse lymphoma cells; a chromosomal aberration test in hamster cells; and a gene conversion a
Saccharomyces cerevisiae. In addition, there was no evidence of mutagenicity in either a dominant lethal test in m
cronucleus test in mice.

In a study in rats, with daily doses up to 500 mg/kg, pravastatin did not produce any adverse effects on fertility
reproductive performance. However, in a study with another HMG-CoA reductase inhibitor, there was decrease
male rats treated for 34 weeks at 25 mg/kg body weight, although this effect was not observed in a subsequent fer
when this same dose was administered for 11 weeks (the entire cycle of spermatogenesis, including epididymal m
In rats treated with this same reductase inhibitor at 180 mg/kg/day, seminiferous tubule degeneration (necrosis
spermatogenic epithelium) was observed. Although not seen with pravastatin, two similar drugs in this class ca
related testicular atrophy, decreased spermatogenesis, spermatocytic degeneration, and giant cell formation in
clinical significance of these findings is unclear.

Pregnancy: **Pregnancy Category X.**: See **CONTRAINDICATIONS**.

Safety in pregnant women has not been established. Pravastatin was not teratogenic in rats at doses up to 1
daily or in rabbits at doses up to 50 mg/kg daily. These doses resulted in 20x (rabbit) or 240x (rat) the huma
based on surface area (mg/meter^2). However, in studies with another HMG-CoA reductase inhibitor, skeletal ma
were observed in rats and mice. There has been one report of severe congenital bony deformity, tracheo-esopha
and anal atresia (Vater association) in a baby born to a woman who took another HMG-CoA reductase inhibitor
troamphetamine sulfate during the first trimester of pregnancy. PRAVACHOL (pravastatin sodium) should be adm
women of child-bearing potential only when such patients are highly unlikely to conceive and have been infor
potential hazards. If the woman becomes pregnant while taking PRAVACHOL, it should be discontinued and
advised again as to the potential hazards to the fetus.

Nursing Mothers: A small amount of pravastatin is excreted in human breast milk. Because of the potential
adverse reactions in nursing infants, women taking PRAVACHOL should not nurse (see **CONTRAINDICATIONS**).

Pediatric Use: Safety and effectiveness in individuals less than 18 years old have not been established. Hence, t
patients less than 18 years old is not recommended at this time.

ADVERSE REACTIONS

Pravastatin is generally well tolerated; adverse reactions have usually been mild and transient. In 4-month long p
trolled trials, 1.7% of pravastatin-treated patients and 1.2% of placebo-treated patients were discontinued fro
because of adverse experiences attributed to study drug therapy; this difference was not statistically significant. I
studies, the most common reasons for discontinuation were asymptomatic serum transaminase increases and
specific gastrointestinal complaints. During clinical trials the overall incidence of adverse events in the elderly wa
ent from the incidence observed in younger patients.

Adverse Clinical Events: All adverse clinical events (regardless of attribution) reported in more than 2% of prava
ed patients in the placebo-controlled trials are identified in the table below; also shown are the percentages of
whom these medical events were believed to be related or possibly related to the drug:

	All Events		Events Attributed to Study Drug	
Body System/ Event	Pravastatin (N = 900) %	Placebo (N = 411) %	Pravastatin (N = 900) %	Placebo (N = 411) %
Cardiovascular				
Cardiac Chest Pain	4.0	3.4	0.1	0.0
Dermatologic				
Rash	4.0*	1.1	1.3	0.9
Gastrointestinal				
Nausea/Vomiting	7.3	7.1	2.9	3.4
Diarrhea	6.2	5.6	2.0	1.9
Abdominal Pain	5.4	6.9	2.0	3.9
Constipation	4.0	7.1	2.4	5.1
Flatulence	3.3	3.6	2.7	3.4
Heartburn	2.9	1.9	2.0	0.7
General				
Fatigue	3.8	3.4	1.9	1.0
Chest Pain	3.7	1.9	0.3	0.2
Influenza	2.4*	0.7	0.0	0.0
Musculoskeletal				
Localized Pain	10.0	9.0	1.4	1.5
Myalgia	2.7	1.0	0.6	0.0
Nervous System				
Headache	6.2	3.9	1.7*	0.2
Dizziness	3.3	3.2	1.0	0.5
Renal/Genitourinary				
Urinary Abnormality	2.4	2.9	0.7	1.2
Respiratory				
Common Cold	7.0	6.3	0.0.	0.0
Rhinitis	4.0	4.1	0.1	0.0
Cough	2.6	1.7	0.1	0.0

* Statistically significantly different from placebo.

The following effects have been reported with drugs in this class; not all the effects listed below have nec
associated with pravastatin therapy:

Skeletal: myopathy, rhabdomyolysis, arthralgia.

Neurological: dysfunction of certain cranial nerves (including alteration of taste, impairment of extra-ocula
facial paresis), tremor, vertigo, memory loss, paresthesia, peripheral neuropathy, peripheral nerve palsy, anxiet
depression.

Hypersensitivity Reactions: An apparent hypersensitivity syndrome has been reported rarely which has inc
more of the following features: anaphylaxis, angioedema, lupus erythematous-like syndrome, polymyalgia rheu
matomyositis, vasculitis, purpura, thrombocytopenia, leukopenia, hemolytic anemia, positive ANA, ESR increase
ia, arthritis, arthralgia, urticaria, asthenia, photosensitivity, fever, chills, flushing, malaise, dyspnea, toxic epider
sis, erythema multiforme, including Stevens-Johnson syndrome.

Gastrointestinal: pancreatitis, hepatitis, including chronic active hepatitis, cholestatic jaundice, fatty change
rarely, cirrhosis, fulminant hepatic necrosis, and hepatoma; anorexia, vomiting.

Reproductive: gynecomastia, loss of libido, erectile dysfunction.

Skin: alopecia, pruritus. A variety of skin changes (e.g., nodules, discoloration, dryness of skin/mucous
changes to hair/nails) have been reported.

Eye: progression of cataracts (lens opacities), ophthalmoplegia.

Laboratory Abnormalities: elevated transaminases, alkaline phosphatase, and bilirubin; thyroid function abn

Laboratory Test Abnormalities: Increases in serum transaminase (ALT, AST) values and CPK have been o
WARNINGS).

Transient, asymptomatic eosinophilia has been reported. Eosinophil counts usually returned to normal desp
therapy. Anemia, thrombocytopenia, and leukopenia have been reported with HMG-CoA reductase inhibitors.

Concomitant Therapy: Pravastatin has been administered concurrently with cholestyramine, colestipol, nicotinic
col and gemfibrozil. Preliminary data suggest that the addition of either probucol or gemfibrozil to therapy with
pravastatin is not associated with greater reduction in LDL-cholesterol than that achieved with lovastatin or prava
No adverse reactions unique to the combination or in addition to those previously reported for each drug alo
reported. Myopathy and rhabdomyolysis (with or without acute renal failure) have been reported when anoth
reductase inhibitor was used in combination with immunosuppressive drugs, gemfibrozil, erythromycin, or l
doses of nicotinic acid. Concomitant therapy with HMG-CoA reductase inhibitors and these agents is generally
mended. (See **WARNINGS**: **Skeletal Muscle** and **PRECAUTIONS**: **Drug Interactions**.)

OVERDOSAGE

To date, there are two reported cases of overdosage with pravastatin, both of which were asymptomatic and n
with clinical laboratory abnormalities. If an overdose occurs, it should be treated symptomatically and supporti
should be instituted as required.

Consult package insert before prescribing PRAVACHOL (pravastatin sodium).

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THE MEDICAL LETTER

Drugs for Hypertension

DRUGS available in the USA for treatment of chronic hypertension, their dosages and adverse effects are listed in the table below and discussed in the text beginning on page 538. Drugs for treatment of hypertensive emergencies are not discussed here.

Oral Antihypertensive Drugs

Drug	Daily adult dosage	Cost[1]	Frequent or severe adverse effects
ANGIOTENSIN-CONVERTING ENZYME (ACE) INHIBITORS			
Benazepril—*Lotensin*	10-40 mg in 1 or 2 doses	$19.09	Cough; hypotension, particularly with a diuretic or volume depletion; loss of taste; rash; acute renal failure with bilateral renal artery stenosis or stenosis of the artery to a solitary kidney; angioedema; hyperkalemia if also taking potassium supplements or potassium-sparing diuretics; blood dyscrasias and renal damage rare except in patients with renal dysfunction; increased fetal mortality; may decrease excretion of lithium
Captopril—*Capoten*	12.5-150 mg in 2 or 3 doses	19.35[2]	
Enalapril—*Vasotec*	2.5-40 mg in 1 or 2 doses	21.53	
Fosinopril—*Monopril*	10-40 mg in 1 or 2 doses	21.26	
Lisinopril—*Prinivil*	5-40 mg in 1 dose	23.59	
Zestril		23.59	
Quinapril—*Accupril*	5-80 mg in 1 or 2 doses	27.27	
Ramipril—*Altace*	1.25-20 mg in 1 or 2 doses	17.72	
ANGIOTENSIN RECEPTOR ANTAGONIST			
Losartan—*Cozaar*	25-100 mg in 1 or 2 doses	$33.00[3]	Little experience, but apparently does not cause cough
BETA-ADRENERGIC BLOCKING DRUGS			
Atenolol—average generic price	25-100 mg in 1 or 2 doses	$20.26	Fatigue; depression; bradycardia; decreased exercise tolerance; congestive heart failure; aggravate peripheral arterial insufficiency; aggravate allergic reactions; bronchospasm; mask symptoms of and delay recovery from hypoglycemia; Raynaud's phenomenon; insomnia; vivid dreams or hallucinations; acute mental disorder; impotence; increased serum triglycerides, decreased HDL cholesterol; generalized pustular psoriasis; sudden withdrawal can lead to exacerbation of angina and myocardial infarction
Tenormin		26.52	
Betaxolol—*Kerlone*	5-40 mg in 1 dose	21.61[2]	
Bisoprolol—*Zebeta*	5-20 mg in 1 dose	26.59	
Metoprolol—average generic price	50-200 mg in 1 or 2 doses	13.53	
Lopressor		15.62	
Toprol XL		13.39	
Nadolol—average generic price	20-240 mg in 1 dose	22.55	
Corgard		28.46	
Propranolol—average generic price	40-240 mg in 2 doses	4.10	
Inderal		18.77	
extended release–average generic price	80-240 mg in 1 dose	23.18	
Inderal-LA		26.91	
Timolol—average generic price	10-40 mg in 2 doses	16.97	
Blocadren		24.85	

Drug	Daily adult dosage	Cost[1]	Frequent or severe adverse effects
BETA-ADRENERGIC BLOCKING DRUGS WITH INTRINSIC SYMPATHOMIMETIC ACTIVITY			
Acebutolol—*Sectral*	200-1200 mg in 1 or 2 doses	$28.08	Similar to other beta-adrenergic blocking drugs, but with less resting bradycardia and lipid changes; acebutolol has been associated with a positive antinuclear antibodytest and occasional drug-induced lupus
Carteolol—*Cartrol*	2.5-10 mg in 1 dose	28.51	
Penbutolol—*Levatol*	20-80 mg in 1 dose	29.20	
Pindolol—average generic price	10-60 mg in 2 doses	36.64	
Visken		46.12	
ALPHA-BETA-BLOCKER			
Labetalol—*Normodyne*	200-1200 mg in 2 doses	$25.52	Similar to other beta-adrenergic blocking drugs, but has intrinsic sympathomimetic activity and more orthostatic hypotension; fever; hepatotoxicity
Trandate		25.52	
CALCIUM-CHANNEL BLOCKERS			
Diltiazem—*Cardizem SR*	120-360 mg in 2 doses	$48.00	Dizziness; headache; edema; constipation (especially verapamil); AV block; bradycardia; heart failure; gingival hyperplasia
Cardizem CD	120-360 mg in 1 dose	31.32	
DilacorXP	120-480 mg in 1 dose	27.79	
Verapamil—average generic price	120-480 mg in 2 or 3 doses	24.61	
Calan		29.85	
Isoptin		27.67	
extended release[4]—*Calan SR*	120-480 mg in 1 or 2 doses	26.72	
Isoptin SP		26.72	
Verelan	120-480 mg in 1 dose	32.30	
DIHYDROPYRIDINES			
Amlodipine—*Norvasc*	2.5-10 mg in 1 dose	$35.36	Dizziness; headache; peripheral edema (more than with verapamil and diltiazem); flushing; tachycardia; rash; gingival hyperplasia
Felodipine—*Plendil*	5-20 mg in 1 dose	25.62	
Isradipine—*DynaCirc*	5-10 mg in 1 or 2 doses	23.71	
Nicardipine—*Cardene*	60-120 mg in 3 doses	36.64	
extended-release—*Cardene SR*	60-120 mg in 2 doses	38.15	
Nifedipine—extended-release	30-90 mg in 1 dose		
Adalat CC		26.11	
Procardia XL		36.96	
DIURETICS			
THIAZIDE-TYPE (Usually once daily)			
Bendroflumethiazide—*Naturetin*	2.5-5 mg	$23.18[2]	Hyperuricemia; hypokalemia; hypomagnesemia; hyperglycemia; hyponatremia; hypercalcemia; hypercholesterolemia; hypertriglyceridemia; pancreatitis; rashes and other allergic reactions; sexual dysfunction; photosensitivity reactions; may decrease excretion of lithium
Benzthiazide—*Exna*	12.5-50 mg	5.99[2]	
Chlorothiazide— average generic price	125-500 mg	1.82[2]	
Diuril		3.92[2]	
Hydrochlorothiazide—average generic price	12.5-50 mg	1.04[2]	
Esidrix		3.61[2]	
Hydroflumethiazide—*Saluron*	12.5-50 mg	15.91[2]	
Diucardin		13.69[2]	
Methyclothiazide—average generic price	2.5-5 mg	2.45[2]	
Enduron		11.97[2]	
Polythiazide—*Penese*	1-4 mg	12.37	
Trichlormethiazide—average generic price	1-4 mg	2.87[2]	
Naqua		10.70[2]	
Metahydrin		12.76[2]	
Chlorthalidone—average generic price	12.5-50 mg	2.27[2]	
Hygroton		19.74[2]	
Indapamide—*Lozol*	2.5-5 mg	25.42	
Metolazone—*Zaroxolyn*	1.25-5 mg	12.86[2]	
Mykrox	0.5-1 mg	21.24	

DIURETICS continued

Drug	Daily adult dosage	Cost[1]	Frequent or severe adverse effects
LOOP			
Bumetanide—*Bumex*	0.5-5 mg in 2 or 3 doses	$ 8.80[2]	Dehydration; circulatory collapse; hypokalemia; hyponatremia; hypomagnesemia; hyperglycemia; metabolic alkalosis; hyperuricemia; blood dyscrasias; rashes; lipid changes as with thiazide-type diuretics
Furosemide—average generic price	20-320 mg in 2 doses	1.73[2]	
Lasix		4.73[2]	
Torsemide—*Demadex*	5-20 mg in 1 or 2 doses	13.13	
POTASSIUM-SPARING			
Amiloride—*Midamor*	5-10 mg in 1 or 2 doses	$13.40[2]	Hyperkalemia; GI disturbances; rash; headache
Spironolactone—average generic price	12.5-100 mg in 1 or 2 doses	2.51[2]	Hyperkalemia; hyponatremia; mastodynia; gynecomastia; menstrual abnormalities; GI disturbances; rash
Aldactone		11.59[2]	
Triamterene—*Dyrenium*	50-150 mg in 1 or 2 doses	9.77	Hyperkalemia; GI disturbances; nephrolithiasis
SOME COMBINATIONS			
Hydrochlorothiazide 25 mg-spironolactone 25 mg (50 mg-50 mg)			Similar to individual components
—average generic price	1 tablet in 1 dose	$ 2.42	
Aldactazide		12.49	
Hydrochlorothiazide 25 mg-triamterene 37.5 mg (25 mg-50 mg; 50 mg-75 mg)			
—generic price (Geneva)	1-2 capsules in 1 dose	10.33	
Dyazide		12.03	
—average generic price	1/2-1 tablet in 1 dose	3.38[2]	
Maxzide		12.38[2]	
Hydrochlorothiazide 50 mg-amiloride 5 mg			
—average generic price	1/2-1 tablet in 1 dose	9.81[2]	
Moduretic		15.62[2]	
ALPHA-ADRENERGIC BLOCKERS			
Prazosin—average generic price	First day: 1 mg at bedtime Maintenance: 1-20 mg in 2 doses	$ 7.72[2]	Syncope with first dose; dizziness and vertigo; palpitations; fluid retention; headache; drowsiness; weakness; anticholinergic effects
Minipress		12.43[2]	
Terazosin—*Hytrin*	First day: 1 mg at bedtime Maintenance: 1-20 mg in 1 dose	36.67	Similar to prazosin
Doxazosin—*Cardura*	First day 1 mg at bedtime 1 dose	26.60	Similar to prazosin, but with less hypotension after first dose
CENTRAL SYMPATHOLYTICS			
Clonidine—average generic price	0.1-0.6 mg in 2 doses	$ 2.54[2]	CNS reactions similar to methyldopa, but more sedation and dry mouth; bradycardia; heart block; rebound hypertension (less likely with patches); contact dermatitis from patches
Catapres		16.85[2]	
transdermal—*Catapres TTS*	one patch weekly (0.1 to 0.3 mg/day)	29.19	
Guanabenz—*Wytensin*	4-64 mg in 2 doses	21.05[2]	Similar to clonidine
Guanfacine—*Tenex*	1-3 mg in 1 dose	24.91	Similar to clonidine, but milder
Methyldopa—average generic price	250 mg-2 grams in 2 doses	6.94	Drowsiness; sedation; fatigue; depression; dry mouth; orthostatic hypotension; bradycardia; heart block; autoimmune disorders, including colitis; hepatitis; hepatic necrosis; Coombs' positive hemolytic anemia; lupus-like syndrome; thrombocytopenia; red cell aplasia
Aldomet		16.13	

Drug	Daily adult dosage	Cost[1]	Frequent or severe adverse effects
DIRECT VASODILATORS			
Hydralazine—average generic price	40-200 mg in 2 to 4 doses	$ 4.61	Tachycardia; aggravation of angina; headache; dizziness; fluid retention; nasal congestion; lupus-like syndrome; hepatitis
Apresoline		24.72	
Minoxidil—average generic price	2.5-40 mg in 1 or 2 doses	8.91	Tachycardia; aggravation of angina; marked fluid retention; possible pericardial effusion; hair growth on face and body
Loniten		11.94	
PERIPHERAL ADRENERGIC NEURON ANTAGONISTS			
Guanethidine—*Ismelin*	10-100 mg in 1 dose	$14.90	Orthostatic hypotension; exercise hypotension; diarrhea; bradycardia; sodium and water retention; retrograde ejaculation
Guanadrel—*Hylorel*	10-75 mg in 2 doses	21.60[2]	Similar to guanethidine, but less diarrhea
Reserpine—average generic price	0.05-0.1 mg in 1 dose	1.17[2]	Psychic depression; nightmares; nasal stuffiness; drowsiness; GI disturbances; bradycardia

COMBINATIONS

BETA-ADRENERGIC BLOCKERS AND DIURETICS

Corzide	nadolol 40 or 80 mg bendroflumethiazide 5 mg
*Inderide**	propranolol 40 or 80 mg hydrochlorothiazide 25mg
Inderide LA	propranolol 80, 120 or 160 mg hydrochlorothiazide 50 mg
Lopressor HCT	metoprolol 50 or.100 mg hydrochlorothiazide 25 or 50 mg
*Tenoretic**	atenolol 50 or 100 mg chlorothalidone 25 mg
Timolide	timolol 10 mg hydrochlorothiazide 25 mg
Ziac	bisoprolol 2.5, 5 or 10 mg hydrochlorothiazide 6.25 mg

ACE INHIBITORS AND DIURETICS

Capozide	captopril 25 or 50 mg hydrochlorothiazide 15 or 25 mg
Lotensin *HCT*	benazepril 5, 10, 20 mg hydrochlorothiazide 6.25, 12.5 or 25 mg
Prinzide	lisinopril 10 or 20 mg hydrochlorothiazide 12.5 or 25 mg
Vaseretic	enalapril 10 mg hydrochlorothiazide 25 mg
Zestoretic	lisinopril 20 mg hydrochlorothiazide 12.5 or 25 mg

ANGIOTENSIN II RECEPTOR ANTAGONIST AND DIURETIC

Hyzaar	losartan 50 mg hydrochlorothiazide 12.5 mg

OTHER COMBINATIONS

*Aldoril**	methyldopa 250 or 500 mg hydrochlorothiazide 15, 25, 30 or 50 mg
Apresazide	hydralazine 25 mg hydrochlorothiazide 25 mg
Esimil	guanethidine 10 mg hydrochlorothiazide 25 mg
*Hydropres**	reserpine 0.125 mg hydrochlorothiazide 25 or 50 mg

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*Also available generically

[1] Cost to the pharmacist for 30 days' treatment with the lowest recommended dosage, based on wholesale price (AWP) listings in *Drug Topics Red Book 1995* and May *Update.*

[2] Cost based on purchase of 30 of smallest tablet size available.

[3] Wholesale price (AWP) listing in *First DataBank Price Alert* May *15. 1995.*

[4] Available generically in 180- or 240-mg extended-release tablets.

ANGIOTENSIN-CONVERTING ENZYME (ACE) INHIBITORS—Ace inhibitors are effective and well tolerated for treatment of hypertension. They are less effective, but not necessarily ineffective, in black patients. ACE inhibitors have no adverse effects on plasma lipid concentrations or on glucose tolerance, and some have been shown to prolong survival in patients with heart failure or left ventricular dysfunction after a myocardial infarction (*Medical Letter* 1993; 35:41, 1994; 36:69) and to preserve renal function in patients with diabetes (Lewis EJ, et al, *N Engl J Med* 1993; 329:1456; Ravid M, et al, *Ann Intern Med* 1993; 118:577).

Patients with high levels of plasma renin activity may have excessive hypotensive responses to ACE inhibitors; such patients include those who are volume-depleted or taking diuretics, and those with renovascular hypertension or congestive heart failure. Patients with bilateral renovascular disease whose renal perfusion is being maintained by high levels of angiotensin II may develop acute renal failure when an ACE inhibitor is used. Cough occurs commonly in patients treated with these drugs (Ravid D, et al, *J Clin Pharmacol* 1994; 34:1116. One recent report suggests that inhalation of cromolyn *(Intal)* may relieve the cough (Hargreaves MR and Benson MK, *Lancet* 1995; 345:13, 7 January 1995). Hyperkalemia can occur, particularly in patients taking potassium supplements or potassium-sparing diuretics, or those with decreased renal function. Angioedema, which may be life-threatening, occurs in 0.1% to 0.2% of patients. ACE inhibitors should not be used during pregnancy because of the risk of fetal injury and death (Shotan A, et al, *Am J Med* 1994; 96:451).

AN ANGIOTENSIN RECEPTOR ANTAGONIST—Losartan, a newly released drug that interferes with binding of angiotensin II to AT-1 receptors, might prove to be as effective as an ACE inhibitor, without causing a cough. Like ACE inhibitors, losartan may be less effective in black patients.

BETA-ADRENERGIC BLOCKING DRUGS—Beta-blockers are effective for treatment of hypertension, but like ACE inhibitors, may be somewhat less effective in black patients (Materson BJ, et al, *N Engl J Med* 1993; 328:914). In controlled trials, beta-blockers have been shown to decrease mortality in patients with hypertension and in patients who have had a myocardial infarction. Although they generally have not been recommended for patients with congestive heart failure, recent data suggest that beta-blockers may be beneficial in such patients when given in low initial doses and carefully monitored (Eichhorn EJ and Hjalmarson A, *Circulation* 1994; 90:2153).

Propranolol, timolol, nadolol, pindolol, penbutolol, and carteolol are "nonselective" beta-blockers; **metoprolol, acebutolol, atenolol, betaxolol and bisoprolol** in low doses are "cardioselective," with a greater effect on cardiac (beta$_1$) adrenoreceptors than on beta$_2$-adrenergic receptors of the bronchi and blood vessels. Selectivity is an advantage for diabetic patients because selective beta-blockers are less likely to delay recovery from hypoglycemia or cause severe hypertension when hypoglycemia leads to an increase in circulating epinephrine. These drugs become less selective, however, as dosage is increased, and even low doses can cause bronchospasm in patients with asthma.

Pindolol, acebutolol, penbutolol, and carteolol have intrinsic sympathomimetic activity. Unlike other beta-blockers, they apparently do not increase serum triglyceride concentrations or decrease HDL cholesterol. In addition, they can lower blood pressure with less decrease in heart rate at rest and may be preferred for patients who develop symptomatic bradycardia with other beta-blockers. They have not, however, been shown to lower mortality after a myocardial infarction.

Labetalol combines nonselective beta-blockade with alpha-adrenergic receptor blockade. It decreases blood pressure more promptly than other beta-blockers, is equally effective in black and white patients and does not affect serum lipids. Orthostatic hypotension is more frequent than with other beta-blockers.

CALCIUM-CHANNEL BLOCKERS—The calcium-channel blockers cause vasodilatation, which decreases peripheral resistance. The cardiac response to the decrease in vascular resistance is variable; with some dihydropyridines (felodipine, isradipine, nicardipine, nifedipine), an initial reflex increase in heart rate usually occurs, but verapamil, diltiazem and amlodipine cause little or no change in heart rate. Verapamil and diltiazem can, however, affect atrioventricular (AV) conduction and should be used with caution in patients also taking a beta-blocker. Calcium-channel blockers, with the possible exception of amlodipine (*Medical Letter* 1992; 34:99), should be used with caution in patients with heart failure or myocardial dysfunction. Unlike diuretics and beta-blockers, calcium-channel blockers do not affect serum lipid concentrations. One retrospective study in patients with hypertension, published to date only as an abstract, found use of calcium-channel blockers associated with an increased incidence of myocardial infarction (Psaty BM, et al, *Circulation* 1995; 91:925, 1 February 1995).

DIURETICS—Diuretics, like beta-blockers, have been shown to decrease mortality in patients with hypertension. Many **thiazide-type diuretics** are used to treat hypertension; **hydrochlorothiazide and chlorthalidone** are the most widely used. **Metolazone and indapamide** (*Medical Letter* 1989; 31:103) may be effective in patients with impaired renal function when thiazides are not. Many patients, particularly older ones, can be treated with small doses of diuretics equivalent to 12.5 mg to 25 mg of hydrochlorothiazide once daily. Doses as low as 6.25 mg are now used to enhance the effectiveness of other drugs while minimizing adverse effects. One study found that use of diuretics for hypertension was associated with an increased risk of sudden death, but not when doses were low or a potassium-sparing diuretic was added (Siscovick DS, et al, *N Engl J Med* 1994; 330:1852).

Loop diuretics can be used to treat hypertension in patients with renal insufficiency (serum creatinine above 1.5 mg/dl). In patients without renal insufficiency, loop diuretics are no more effective than thiazides for treatment of hypertension.

Potassium-sparing diuretics are used with other diuretics to prevent or correct hypokalemia. These drugs can cause hyperkalemia, particularly in patients with renal impairment and those taking other drugs that decrease aldosterone secretion, such as ACE inhibitors.

ALPHA-ADRENERGIC BLOCKING DRUGS—Alpha-blockers useful in treating hypertension act at vascular postsynaptic alpha receptors to produce arterial and venous dilatation. **Prazosin, terazosin and doxazosin** cause less tachycardia than direct vasodilators (hydralazine, minoxidil) but more frequent postural hypotension, particularly following the first dose of any of these drugs. In contrast to diuretics and beta-blockers, alpha-blockers do not adversely affect blood lipids; they may increase the HDL/total cholesterol ratio (Kasiske BL, et al, *Ann Intern Med* 1995; 122:133, 15 January 1995). Alpha-blockers may provide symptomatic relief from prostatism in men (*Medical Letter* 1994; 36:15; Oesterling JE, *N Engl J Med* 1995; 332:99), but they may also cause stress incontinence in women (Dwyer PL and Teele JS, *Obstet Gynecol* 1992; 79:117), and the incidence of postural hypotension is higher in elderly patients.

CENTRAL SYMPATHOLYTICS—Drugs such as **clonidine, guanabenz, guanfacine and methyldopa** do not inhibit reflex responses as completely as sympatholytic drugs that act peripherally, but frequently cause sedation, dry mouth and depression.

DIRECT VASODILATORS—Direct vasodilators frequently produce reflex tachycardia, and rarely cause orthostatic hypotension. They should usually be given with a beta-blocker or a centrally-acting drug to minimize the reflex increase in heart rate and cardiac output, and with a diuretic to avoid sodium and water retention. With **hydralazine,** maintenance dosage should be limited to 200 mg per day to decrease the possibility of a lupus-like reaction. **Minoxidil,** a potent drug that rarely fails to lower blood pressure, should be reserved for severe hypertension refractory to other drugs. Minoxidil usually causes hirsutism and can cause severe fluid retention.

PERIPHERAL ADRENERGIC NEURON ANTAGONISTS—These drugs can cause troublesome adverse effects and are seldom used now. **Reserpine** is an inexpensive and effective antihypertensive drug (Lederle FA, et al, *Arch Intern Med* 1993; 153:705); given in doses higher than now recommended, it can cause severe depression. **Guanethidine** usually decreases cardiac output and may lower systolic pressure more than diastolic; postural and exertional hypotension occur commonly and are aggravated by vasodilatation caused by a hot environment, exercise or alcohol. **Guanadrel** is similar to guanethidine, with a much shorter duration of action.

COMBINATION PRODUCTS—Thiazide diuretics are available in fixed-dose combinations with potassium-sparing diuretics and with other antihypertensive drugs. Combination products are convenient, but many *Medical Letter* consultants prefer to adjust the dosage of each drug separately. When the optimum maintenance doses correspond to the ratio in a combination product, taking fewer tablets may improve compliance.

INTERACTIONS—In addition to the adverse effects listed in the table, antihypertensive drugs may interact adversely with other drugs taken at the same time *(The Medical Letter Handbook of Adverse Drug Interactions,* 1995). One particularly important interaction can occur with nonsteroidal anti-inflammatory drugs (NSAIDs), which can decrease the effectiveness of many antihypertensive agents (Johnson AG, et al, *Ann Intern Med* 1994; 121:289).

CHOICE OF DRUGS—All the drugs approved for treatment of hypertension in the USA are effective in lowering blood pressure. Diuretics, beta-adrenergic blockers, ACE inhibitors and calcium-channel blockers are the best tolerated. Only diuretics and beta-adrenergic blockers have been shown in large-scale clinical trials to decrease mortality in patients with hypertension. ACE inhibitors, calcium channel blockers and alpha-adrenergic blockers have, however, a more favorable effect on some cardiovascular risk factors.

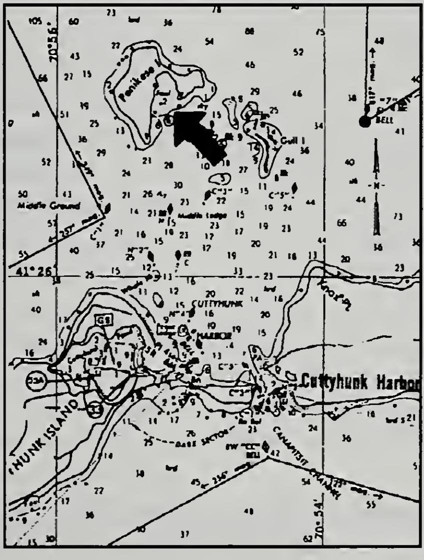
In special categories of patients, one drug may offer advantages over the others. Diuretics and calcium-channel blockers are more effective than beta-blockers or ACE inhibitors in **black patients.** Patients with **diabetes,** particularly with nephropathy, may benefit most from an ACE inhibitor. For patients with **hyperlipidemia,** an ACE inhibitor, alpha-blocker or calcium-channel blocker might be a good choice. Patients with **congestive heart failure** may gain extra benefit from an ACE inhibitor. A beta-blocker (without intrinsic sympathomimetic activity) may be indicated for hypertensive patients with **angina pectoris or migraine,** and for those who have had a **myocardial infarction.**

Even when drugs are carefully chosen to fit individual needs, patients' responses may vary (Attwood S, et al, *J Hypertension* 1994; 12:1053). If the first drug chosen proves to be ineffective or poorly tolerated, a drug from another class should be substituted. If more than one drug is necessary and a diuretic was not used initially, most *Medical Letter* consultants would add a diuretic.

Unclean, Unclean . . .

STANLEY M. ARONSON, M.D.

COASTAL sailors—recreational or commercial—know of a drab, undistinguished bit of offshore granite rock situated southeast of Rhode Island, just beyond Cuttyhunk, called Penikese Island. Beginning in the 19th century this barren site housed the leper colony for all of New England. The facility was closed, finally, in 1921 and its remaining 13 inmates were transferred to the Carville leprosarium in Louisiana. The grim Penikese dormitories now house a school for delinquent boys.



At one time last century, active leprosaria were maintained in Florida, Louisiana, Texas, Minnesota, California, as well as the New England waters. The largest of these, virtually indentured villages, are still in existence in Kalaupapa on the Hawaiian island of Molokai and in Carville, Louisiana. The closure of almost all of the leper colonies reflects three realities: First, that the number of new cases of leprosy has diminished progressively in the United States since the beginning of the current century, with fewer than 150 new cases in 1975. A transient rise in the next decade (see accompanying graph) was occasioned by numerous imported cases as large numbers of Southeast Asians sought refuge in this country. Second, that the communicability of leprosy had been vastly exaggerated. And third, that the enforced isolation of the leper represented an ill-informed and barbaric residue of prior centuries. Patients with leprosy are now readily admitted to our general hospitals in Rhode Island without fear that the disease will spread. Of course, this treatable disorder is now wisely called Hansen's disease, a name unblemished by older superstition—and a name unlikely to prompt panic.

There are few diseases which carry the dread, the mythology, the social burden, and the demonization that leprosy bears. In Leviticus, two chapters are devoted solely to its recognition and treatment. And once the pronouncement is made, "... the leper in whom the plague is, his clothes shall be rent, and he shall put a covering upon his upper lip and shall cry, Unclean, unclean. He shall dwell alone; without the camp shall his habitation be." Medical historians ask, however, whether the Hebrews, a nomadic people deeply concerned with hygiene, were not perhaps describing a broader range of chronic ailments with skin ulcerations, scalings, and discolorations. When the Scriptures had been translated to Greek, the word *lepros*, meaning a scale or desquamation, was selected for these illnesses and it has persisted to this day. In the New Testament, two unrelated persons, each named Lazarus, are mentioned. In John, chapters 11 and 12, Lazarus of Bethany, brother to Mary and Martha, took sick and died. He lay in his grave for four days until Jesus came, and Lazarus then rose from the dead. Luke, chapter 16, speaks of yet another Lazarus in a parable concerning

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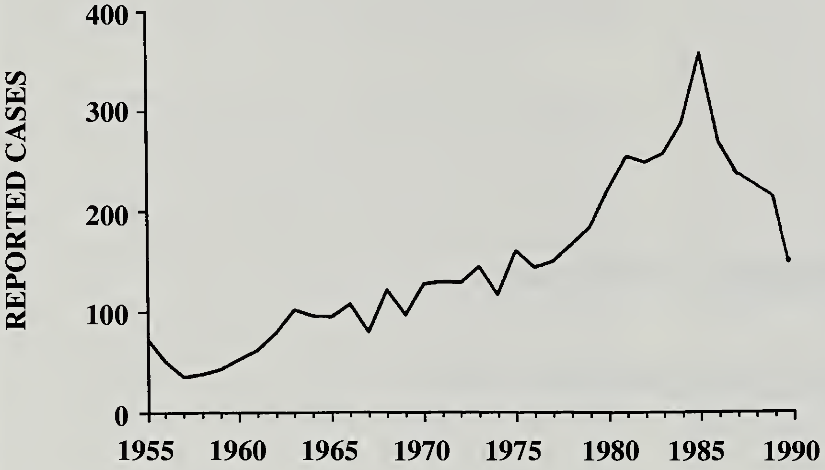
STANLEY M. ARONSON, M.D., Editor-in chief, *Rhode Island Medicine.* Reprinted with permission from *Rhode Island Medicine*, June 1995, vol. 78, no. 6, pp. 155-6.



LEPROSY — By year, United States,

a beggar full of sores who dies at the gate of a wealthy man. The name, Lazarus, incidentally, had already undergone many changes since its original Hebrew form, Eliezar (meaning, helped by God); the name, in time, was abbreviated to La'zar, then to Lazar, and finally, with a Greek suffix, to Lazarus. It was the second Lazarus, the sorely afflicted beggar, who was to become symbolic of the wretched and reviled lepers of the world. And from his name has evolved a series of names for persons, places and organizations pertaining to leprosy. Lepers were called lazars; leprosy sanctuaries were called lazarets or, in Italian, lazarettos; a religious-military order of knights formed in Jerusalem during the crusades was called the order of St. Lazarus, its objective to provide shelter for lepers. For centuries it supervised lazar-houses, particularly in France, until 1830. Somehow, the tales of the two scriptural Lazaruses had merged and the patron saint of this order was not the Lazarus with the loathsome sores but the Lazarus raised from the dead. The Lazarites, a missionary order founded in 1632 by St. Vincent de Paul, on the other hand, bore that name only because their first home in Paris had been the abandoned priory of St. Lazarus.

It is said that leprosy represented the dominant disease of the early middle ages; but whether these many outcasts suffered from a chronic infection of *M. leprae* or perhaps from one of a host of other chronic, deforming disorders is most debatable. Facial cancer, lupus, pellagra, scabies foeda, scrofula, and morphea (a form of scleroderma) might easily have simulated leprosy. The descriptions rendered in the 13th century, while bearing a modest resemblance to Hansen's disease, are nonetheless lacking in anything pathognomonic: *the eye brows fall bare, and get knotted with uneven tuberosities; the nose and other features become thick, coarse, and lumpy, the face loses its mobility or play of expression, the raucous voice, the loss of sensibility in the hands, and the foul-smelling sores.... (De Lepra,* Gilbertus Anglicus, about 1307). In the next century, four cardinal signs of leprosy were widely adopted by clerics seeking out the leper: *alopecia, tinea, leonina,* and *elephantia.* Many names, in addition to leprosy, were used: mesel, *Lepra Arabum,* and *Elephantiasis Graecorum.*

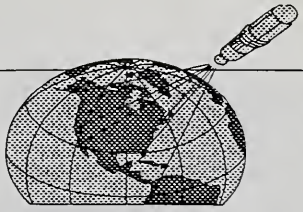
The status of lepers in the 13th century was most anomalous. On the one hand they were consigned by a higher authority to be bearers of a profane, loathsome disease, forbidden to live in any city, enter into any commerce, or commune with mankind; also, they were denied the right of church attendance or even burial within a consecrated churchyard; they were not allowed to inherit, nor even to bequeath since their estates, if any, had instantly reverted to the state upon the establishment of their diagnosis. English civil law after 1270 gave local jurisdictions the right of expulsion if, in their judgment, leprosy became a manifest peril to the community. On the other hand, lepers were declared the blessed outcasts, *pauperes Christi,* the wards of nobility, given shelter without fee in special structures (lazarcotes, lazar-houses; England had almost 200 of them in the 14th century), permitted to beg in certain restricted zones and allowed to observe the altar through specially constructed narrow openings in the outer transept walls of cathedrals (openings called leper's windows or hagioscopes).

The lazar house of medieval England—sometimes called *Domus Dei* (House of God)—was a rude structure situated at the margins of most every city, often near healing mineral springs. The corruption of the flesh was already assumed and the avowed purpose of these sanctuaries, therefore, became ecclesiastic rather than therapeutic, serving to achieve the salvation of the soul rather than the body. Many leper hospices bore the name of St. Giles, the 6th-century Athenian who founded a retreat for the poor in Arles and who then became the patron saint of the crippled, the beggar and the leper.

The 14th-century leper—or at least those so labeled—wore a characteristic grey cowled robe and carried a beggar's bowl as well as a wooden clapper, or bell, to announce his presence. By ordinance, the lepers were permitted two occupations: to beg, but only in certain restricted lanes; and to bury the bodies of executed criminals in unhallowed graves. The great famines and pestilences of the terrible 14th century reduced many non-

(continued on page 562)

STD UPDATE 1995



THE VIRAL STDs

THURSDAY, NOVEMBER 16, 1995
8:15 A.M. - 4:30 P.M.

LIVE FROM THE COLONIAL HILTON, WAKEFIELD, MASSACHUSETTS AND BROADCAST TO SEVEN OTHER SITES IN NEW ENGLAND

Description of the program: This satellite conference is designed for clinicians. The morning session will provide information on the clinical management of hepatitis B, cytomegalovirus (CMV), herpes simplex virus (HSV), and human papillomavirus (HPV) infections. Each lecture will include an overview of the epidemiology, clinical manifestations and potential complications. Treatment modalities and follow-up will be emphasized. Prevention strategies as appropriate will be summarized. The afternoon lectures will describe the interrelationships between HIV and STDs, an update on the gender differences in the manifestations of HIV infection, and on the initiation of antiretroviral therapy. A panel will follow to discuss the different antiviral therapeutic modalities for HIV infection. An information packet will be available for participants at all sites. ***Dr. Cheryl A. Gibson will present live from Burlington, Vermont. All other lectures will be given live from the Colonial Hilton in Wakefield, Massachusetts. All downlink sites will be audio-linked to the live presentations so that everyone may participate in the discussion periods.***

PROGRAM

:30 a.m.	**Registration**
:15 a.m.	**Welcome and Opening Remarks**
:30 a.m.	**Hepatitis B** Raymond S. Koff, MD
:10 a.m.	**Questions and Discussion**
:25 a.m.	**Herpes Simplex Virus Infections** David I. Dorsky, MD, PhD
0:05 a.m.	**Questions and Discussion**
0:20 a.m.	**Refreshment Break**
0:35 a.m.	**Human Papillomavirus Infections** Cheryl A. Gibson, MD ***presented live from Burlington, VT***
1:15 a.m.	**Questions and Discussion**
1:30 a.m.	**Cytomegalovirus Infections** Patricia L. Hibberd, MD, PhD
2:10 p.m.	**Questions and Discussion**
12:30 p.m.	**Luncheon**
1:30 p.m.	**Epidemiological Synergy: Interrelationships between HIV and STDs** Judith N. Wasserheit, MD, MPH
2:15 p.m.	**Questions and Discussion**
2:30 p.m.	**Update on Management of HIV Infection: Clinical Manifestations and Initiation of Antiretroviral Therapy** Kenneth H. Mayer, MD
3:15 p.m.	**Panel Discussion: Antiretroviral Therapy** Sarah H.Cheeseman, MD Donna Felsenstein, MD Kenneth H. Mayer, MD Paul R. Skolnik, MD
3:45 p.m.	**Questions and Discussion**
4:30 p.m.	**Adjournment**

resented by the STD/HIV Prevention Training Center of New England , in cooperation with the Massachusetts Health esearch Institute (MHRI), and the STD Divisions of the Public Health Departments of Massachusetts, Connecticut, New ampshire, Maine, Rhode Island and Vermont.

his program is jointly sponsored by the Massachusetts Medical Society

ONTINUING MEDICAL EDUCATION CREDIT: The Massachusetts Medical Society (MMS) designates this activity for seven credit hours in Category 1 of the hysician's Recognition Award of the American Medical Association. The MMS is accredited by the Accreditation Council for Continuing Medical Education ACCME) to sponsor continuing medical education for physicians.

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Registration fee includes continental breakfast, lunch and refreshment breaks at all sites

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PLEASE MAKE CHECKS PAYABLE TO: MHRI/CD EDUCATIONAL FUND
Please complete and return this registration form and payment **by November 9, 1995** to :
STD/HIV Prevention Training Center of New England, State Laboratory Institute, Division of STD Prevention, 305 South Street, Boston, MA 02130.

Written confirmation will be sent along with complete address and directions to the chosen site. Cancellations must be submitted in writing and received at the above address by November 9, 1995.

QUESTIONS ? CALL THE STD/ HIV PREVENTION TRAINING CENTER AT (617) 983-6940.

Commentary: Condoms and HIV/STD Prevention—Clarifying the Message

WILLIAM L. ROPER, M.D., HERBERT B. PETERSON, M.D.,
AND JAMES W. CURRAN, M.D.

ABSTRACT—In the United States and throughout the world, the majority of human immunodeficiency virus (HIV) infections are sexually transmitted. An estimated 12 million other sexually transmitted diseases occur annually in the United States. Avoiding sexual intercourse altogether or restricting sex to partners known to be uninfected will prevent infection; this needs to be promoted as the most effective strategy. Studies show that correct and consistent use of latex condoms is highly effective in preventing sexually transmitted HIV infection and other sexually transmitted diseases. The effectiveness of condoms depends on individual behavior leading to correct and consistent use. Further studies are needed to maximize the use and effectiveness of condoms for those who choose to be sexually active as well as to develop and evaluate other methods, particularly those more under the control of women. In the interim, our prevention message should be clear: When used correctly and consistently, condoms are highly effective; when used otherwise, they are not. (*Am J Public Health* 1993; 83:501-3)

MORE than one million Americans have been infected with the human immunodeficiency virus (HIV), and more than 250,000 have already been reported with acquired immunodeficiency syndrome (AIDS). In the United States and throughout the world, the majority of HIV infections are sexually transmitted. Furthermore, an estimated 12 million other sexually transmitted diseases occur each year in the United States, resulting in mortality and serious morbidity for many thousands of adults and children.

How can we reduce the sexual transmission of HIV and other diseases? Avoiding sexual intercourse altogether or restricting sex to partners known to be uninfected will prevent infection, and this needs to be widely and consistently promoted as the most effective strategy. However, many people at risk for HIV infection and other sexually transmitted diseases do not adopt these behaviors. Studies of sexually active persons show that correct and consistent use of latex condoms is highly effective in preventing HIV infection and other sexually transmitted diseases, including gonorrhea, chlamydia, genital ulcers, and herpes simplex virus infection.[1]

Two issues generally surface in the debate over advocating condom use in the prevention of HIV infection: One concerns the concepts of efficacy and effectiveness, the other the fear that making condoms available will encourage early sexual activity among adolescents and extramarital sex among adults. We deal with each argument in turn.

Condoms are not 100% efficacious and a high degree of individual compliance is required for condoms to be effective in use. Critics of the role of condoms in prevention cite worst-case-scenario estimates of condom efficacy and focus on results from studies that include persons who are inconsistent condom users. The problems associated with insisting on providing information only about perfectly effective prevention techniques have been recently reviewed.[2] Assertions that minimize the potential efficacy of condoms may be self-fulfilling prophecies, because condoms may be used less consistently by those who do not believe them to be effective. However, Fineberg

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has developed a mathematical model that predicts that consistent condom use could prevent nearly half of the sexually transmitted HIV infections in persons with one sexual partner and over half of HIV infections in persons with multiple partners.[3] Such a reduction could help interrupt the propagation of the epidemic. Therefore, promoting more widespread understanding of condoms' efficacy and advocating their consistent use by those who choose to be sexually active is crucial to protecting people from HIV infection and to slowing the spread of the HIV and sexually transmitted disease epidemics.

The effectiveness of consistent condom use is evident from recent epidemiologic studies of couples in which one partner has HIV infection. In three such prospective studies, consistent condom use provided a 70% to 100% reduction in the risk of transmitting HIV infection.[4-6] One of these studies[6] makes the critical distinction between the benefits of consistent and inconsistent condom use. In that study, from the European Study Group on Heterosexual Transmission of HIV, 563 couples from nine European Community countries were evaluated. Overall, 12% of the male partners and 20% of the female partners of HIV-infected persons became infected. However, among the 24 couples who consistently used condoms, none of the partners became infected. By contrast, among the 44 couples who reported inconsistent use of condoms, six female partners became infected. For condoms to provide a high degree of protection against HIV infection, they must be used correctly and consistently; inconsistent condom use provides an unacceptably low rate of protection.

The importance of compliance is illuminated by an analogy with pregnancy prevention programs. Although typical pregnancy rates for couples who use condoms are as high as 10% to 15%,[7,8] rates are estimated to be as low as 2% for couples who use condoms correctly and consistently.[7] This discrepancy makes clear that any condom strategy must rely on the continuing behavior of the condom user. It is necessary, therefore, to integrate consistent condom use into our HIV prevention strategies.

Despite the widespread understanding that HIV infection is transmitted sexually, most sexually active Americans at risk for acquiring HIV infection have intercourse without using condoms. For example, in San Francisco, only 6% of heterosexual males with multiple sex partners reported always using condoms; a much higher proportion (48%) of gay and bisexual men reported always using condoms.[9] In another study, only about 20% of sexually active American women reported that their male partners used condoms.[10] But even among these couples, condom use was inconsistent; only one in five who reported condom use said that they were used at last intercourse.[10]

The factors that contribute to the low use of condoms and the ready acceptance of risk of HIV infection or other sexually transmitted diseases are complex and not completely understood. Among heterosexual men and women and gay and bisexual men in San Francisco,[9] sexual communication between partners and enjoyment of intercourse with condoms were the only statistically significant correlates of condom use. Although in that study Black and Hispanic women were less likely to report condom use by their partners than were White women,[9] national data suggest that there are no significant differences in reports of condom use by partners of Black women, non-Hispanic White women, and Hispanic women once social and demographic variables are accounted for.[10] This suggests that poverty and culture are important determinants of condom use.

After social and demographic factors are controlled for, women with multiple partners are less likely than those with one partner to report consistent condom use, perhaps because of the burden of negotiating condom use with many partners.[10] Also, decisions regarding condom use may be complicated by strategies for pregnancy prevention. In Philadelphia[11] and Baltimore,[12] women who had undergone surgical sterilization were less likely than nonsterilized women to report condom use. It is possible that if the woman is protected against pregnancy, the motivation of the woman or the man to use a condom may be reduced.

We turn now to the second issue often raised against advocacy of the condom. Many persons assert that those who promote condom use to prevent HIV infection appear to be condoning sexual intercourse outside of marriage among adolescents as well as among adults. Some information relevant to this possibiliy is now at hand. For example, recent data from Switzerland suggest that a public education campaign promoting condom use can be effective without increasing the proportion of adolescents who are sexually active.[13,14] From January 1987 to October 1991, self-reported consistent condom use among persons aged 17 to 30 years increased from 8% to 52% in association with the campaign.[13] By contrast, the proportion of adolescents (aged 16 to 19 years) who had sexual intercourse did not increase over that three-year period.[14]

A clear message about condoms may in fact have been obscured by controversy over providing condoms for adolescents in schools while at the same time trying to discourage these same young people from initiating sexual activity. Sexual activity among adolescent women and men in the United States has increased steadily since the 1970s.[15-17] The AIDS epidemic has brought new dimensions of complexity and urgency to the debate over adolescent sexual activity. Some have urged abstinence as the only solution; others champion condom use as the most practical public health approach.

There must be a common ground. We should all be able to agree that premature initiation of sexual activity carries health risks. Therefore, we must exercise leadership in encouraging young people to postpone sexual activity. Adolescents are bombarded with messages encouraging them to "do it." We need to strive for a climate supportive of young people who are not having sex and so help to create a new health-oriented social norm for adolescents and teenagers about sexuality.

As we proceed toward this objective, we must be mindful that many will continue to engage in sexual activity. It is essential that these youngsters receive the message that they must practice safer sex and use condoms. The message that those who initiate or continue sexual activity must reduce their risk through correct and consistent condom use needs to be delivered as strongly and persuasively as the message "Don't do it." Protection of the individual and the public health will depend on our ability to effectively combine these messages.

Scientific studies are urgently needed to further understanding of how to maximize the use and effectiveness of condoms, to clarify the effectiveness of other barrier methods, and to develop and evaluate other preventive methods. In particular, studies should address the male, female, and couple determinants of consistent condom use, including the crucial role of peers and the need for a better understanding of economic and cultural variables. Because the male condom must be used by the man, a woman at risk must, in part, rely on her male partner(s) to protect her. Therefore, to enhance the ability of women to reduce their risks, further evaluation of mechanical and chemical barriers—including female condoms—is needed, as is the development of new methods over which women have greater control.[18-21] Finally, studies should evaluate how condom use is related to the use of other methods to prevent unintended pregnancy so as to address the overall reproductive health needs of both partners.

For adolescents and adults alike who have multiple sex partners, partners who engage in high-risk behaviors, or partners whose infection status is unknown, the risk of HIV infection or other sexually transmitted diseases can be dramatically reduced by correct and consistent condom use. Our prevention message should be clear on this point: When used correctly and consistently, condoms are highly effective; when used otherwise, they are not.

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American Medical Association
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Commentary

Medicare Must Be Reformed

The Republicans have finally found the political courage to address the budget deficit and are focusing on controlling the costs of Medicare. Unfortunately, the centerpiece of the Republican proposal—pushing the elderly into health maintenance organizations (HMOs)—is doomed to failure.

When Medicare was enacted in 1965, government analysts estimated the total annual bill by 1990 would be $9 billion. In actuality it was over $100 billion and, according to the Clinton administration, Medicare will be bankrupt in seven years even though Congress has made numerous attempts to control costs.

One of the first attempts was to decrease reimbursement to doctors and hospitals. The problem was that the elderly, many of whom live on fixed income, had to pay more costs out of their pockets. Thus, Congress initiated "maximally allowable charges" (MAACs) in which they set the fees of doctors and hospitals. What happened, though, is that doctors and hospitals simply increased utilization to recover the lost money. In other words, Mrs. Jones's high blood pressure was taken care of in three visits instead of two and Mr. Smith stayed in the hospital for two weeks after his heart attack instead of 10 days. Meanwhile, Medicare costs skyrocketed.

Then someone came up with the concept of "diagnosis related groups" (DRGs) in which hospitals were paid a fixed amount to treat a given disease. For example, the hospital would receive $5,000 from Medicare to treat Mr. Wilson's pneumonia, whether he stayed in the hospital for two days or 10 days. This too failed because elderly patients were heaved out of the hospital before they were cured and had to be readmitted. Finally, Congress with the help of a Harvard professor, came up with a reimbursement scheme based on the "relative value" of the services doctors rendered. This decreased reimbursement to surgeons and increased reimbursement to primary care doctors. It didn't control costs either.

Our professional politicians finally figured out that the government cannot micromanage health care and initiated pilot programs that offered HMOs a fixed amount of money per senior citizen enrolled. This is why the airwaves are now polluted with advertisements promising seniors health insurance without copayments or deductibles.

Early studies indicate that this policy is actually increasing costs. Why is this? Because senior citizens are not stupid. Those with chronic illnesses know they will be denied access to specialists and expensive treatments if they sign up with an HMO. Thus, the sick elderly are opting to stay in the traditional Medicare program. The healthy elderly, goaded by the promise of no copayments or the need to buy secondary insurance, are opting for HMOs. Naturally, the HMOs encourage senior enrollees who become ill to switch back to traditional Medicare.

Our professional politicians fail to tell the voters the real reason Medicare costs have skyrocketed—advancing technology and increasing life span. In 1965, if grandpa had intractable chest pain, he simply lived with it until he died. If grandma broke her hip, she remained bedridden until she succumbed to pneumonia or a pulmonary embolism. While it was unfortunate, at least it was cheap.

Every two years, life expectancy in the United States increases by four months. Medical technology coupled with taxpayer-financed health insurance has given our senior citizens a second middle age. Cataract implant surgery, hip replacements, knee replacements, cardiac bypass surgery—even penile implants—are financed by Medicare. More of these procedures are being done because people are living longer. I once removed a cataract in a blind 105-year-old man who then resumed reading and watching television. He continued reading until he died at the age of 107. There are those who would argue that nothing should be done for a 105-year-old, but it would be cruel to let a man spend his final years in darkness, regardless of his age.

Their are several options to solve the Medicare mess: increase taxes, make the seniors pay more, or ration services. Fortunately, there is a palatable solution, but it will require political courage.

Our seniors have been misled by our professional politicians into thinking that the money they contributed to Medicare during their working years was set aside in a trust fund to pay for their health care during their golden years. In actuality, the money was used to fund the health care of the previous generation of seniors. The Clinton administration estimates that Medicare will be bankrupt in seven years unless the Medicare tax is increased from its present level of 2.9% to 4.0%. Further tax increases will be needed when the baby boomers start retiring in 2010.

The past policies of costs controls, pushing the elderly into HMOs, and trying to ferret out "fraud and abuse" have failed to control costs. What is really needed is radical reform that makes the wealthy elderly pay higher premiums and disallows useless treatments at the end of life.

Under the present Medicare system, billionaires receive the same benefits as paupers. Medicare should be means tested so that the wealthy elderly have to contribute more to the system. It simply is not fair that bank tellers working for $8.00 an hour without health benefits be forced to finance the health care of retired corporate executives with six-figure annual pensions.

Thirty percent of an individual's lifetime health-care costs are incurred during the final month of life. This is a major reason why America's health-care costs are higher than those in other industrialized countries. In Europe, doctors withhold treatment from someone who is obviously dying. Patients with end-stage heart and lung disease or terminal cancer are simply told to get their affairs in order.

More and more patients are beginning to realize that much care at the end of life may be futile. Jacqueline Kennedy believed her doctors when they told her that further treatment would be useless, and died in the comfort of her own home. President Nixon had a living will that stated he wanted no artificial means to keep him alive. Had his family insisted he might have survived his devastating stroke, but would probably be in a nursing home, unable to speak or walk and wearing a diaper.

The problem is that the public is unaware that the vast majority of treatment at the end of life is futile. A recent study showed that 80% of those over 65 would seek a second opinion if told they had a terminal illness. Families often react with hostility when doctors suggest that further treatment for a loved one may be futile. Doctors often choose the path of least resistance, dispensing futile treatments since Medicare will pay and because it removes the specter of litigation. Meanwhile, many of our elderly spend their final days in intensive care with tubes coming out of every orifice while the taxpayer pays the bill.

How do we get around this? Every hospital has an ethics committee comprising doctors, nurses, lawyers, and clergy. These committees, with appropriate guidelines, should be empowered to recommend withholding futile treatment. If a patient decides he wants futile treatment anyway he or his family should be responsible for the bill, not the taxpayers.

Joseph F. Bentivegna, M.D.

Rocky Hill

50 Years Ago

From *The Connecticut State Medical Journal*

September 1945

The Discharge of Medical Officers From the Army of the United States

A Memorandum to the Board of Trustees of the American Medical Association from the Council of the Connecticut State Medical Society

IN 1940, long before the declaration of war, the American Medical Association took the leadership in preparation for medical participation in a national conflict that appeared imminent. At that time the American Medical Association advised each of the component state societies to appoint committees on medical preparedness in order that planning for war might be made within the medical profession. The American Medical Association also conducted a national census of physicians which brought together information concerning the medical profession that must have proved to be of inestimable value during the years that followed.

It was through the efforts of the American Medical Association that the Procurement and Assignment Service for Physicians and Dentists was established by Executive Order of the President of the United States and by the operations of that agency through its Directing Board and state units, recruitment of medical officers to serve with the Forces was carried out in a manner that provided the Services with an adequate supply of medical officer personnel and at the same time, through careful judgment, maintained civilian medical care at a surprisingly high level.

The American Medical Association is to be commended for its foresight, and the service that it rendered to the nation in the present world conflict will ever remain to the credit of the Association.

With the cessation of hostilities in Europe and an announced policy on the part of the Army to reduce its numbers substantially, it becomes evident that the civilian population of the country which has long gone without much of the medical care it desired, expects that the services of a large number of medical officers will no longer be necessary and they will be returned promptly to resume their former occupation. America has been extraordinarily fortunate in being free from widespread illness and epidemic during the years of the war and how long this state of affairs can be expected to last no one can forecast.

In the months that have passed, since capitulation in Germany, the Army has not announced any clear cut policy relative to the separation of medical officers nor has any information been made available to the country as to how many medical officers have been returned to civil life.

It is the opinion of the Council of the Connecticut State Medical Society, acting upon behalf of the medical profession in the state and in the interest of the people of Connecticut, that the American Medical Association, having displayed wisdom and foresight in the recruiting of a medical force, will be doing less than its duty if it does not exert the same skill and influence now in seeing that medical officers are separated from war service with all dispatch and in as large numbers as is consistent with military achievement. It is a matter of common knowledge, believed to be accurate, that there are sixty thousand

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physicians now serving with the Army and the Navy providing medical care for approximately ten million persons in the Forces. And there are seventy or seventy-five thousand physicians, many of advanced age, remaining to provide medical care for one hundred and thirty million civilians. No question was raised as to this discrepancy of distribution of medical personnel during the period of active hostilities for every person in America wanted the members of the Forces to have the very best possible medical care and they have received it. Now, with the European phase of the war passed, and massed hostilities in the Pacific not certain, the relative lack of medical personnel for civilian care becomes grossly conspicuous.

The Council of the Connecticut State Medical Society urges the American Medical Association to assume again leadership in this field, to press the reactivation of the Procurement and Assignment Service in a workable and liberal advisory authority concerning the separation of medical officers and restore to it the same responsibility it exercised during the period of recruitment of medical officers. Further the American Medical Association and its components should seek the interest of the Congress of the United States in providing a clear and productive separation policy for medical officers in order that civilian medical care strained for three years, be restored as rapidly as possible to the safe and useful level that the patriotic and self-sacrificing people of the United States have a right to expect.

Unclean, Unclean ... *continued from page 552*

lepers to begging; and for perhaps the only time in the disquieting history of leprosy, many homeless, untouched by leprosy, sought voluntary asylum in lazar houses donning the despised leper cloak so that they too might receive alms. The faces of allegedly leprous beggars were examined for lack of eyebrow hair and for the characteristic vitiliginous, parchment-white patches. Severe penalties were then meted out to the faux lepers. During this time of unrest the distinction between pilgrim, beggar, leper, knave, and vagrant grew increasingly blurred.

Leprosy remains the sole disease for which society demanded permanent quarantine, in essence, life imprisonment. What was so special about leprosy to warrant this excessive reaction? Certainly its communicability was minimal; and, since the 15th century, its prevalence, at least in Europe, has been quite low. Yet, unattended, this disease turns into an incurable, disfiguring, and disabling infirmity lingering for decades in the squeamish sight of others. Furthermore, leprosy, alone amongst diseases, bears a scriptural stigma calling for its utter isolation.

In the 13th century, the patriarch Job was said to be leprous; in the 14th century, he was thought to have had bubonic plague; in the 16th century he was declared to have been afflicted with venereal lues; and now in the 20th century, he is said to have staphylococcal boils associated perhaps with an immune deficiency. Truly, through the centuries, the affliction of Job furnishes a mirror that reflects the medical anxieties uppermost in each age.

The great bubonic plague of the mid-14th century depopulated Europe, but to an even greater degree it killed off the enfeebled, malnourished population of lepers. By the 15th century leper houses were increasingly vacant, and many of these shelters were then converted to other communal uses. By the 19th century leprosy in Europe shrank to a distant but repugnant memory except in residual pockets of disease in the Scandinavian countries, Scotland and southwest England. And by the 20th century, leprosy's center of gravity had shifted almost entirely to Asia and sub-Saharan Africa where the great majority of today's 11 million lepers may now be found. Nonetheless, in 1903, leprosy was one of only seven medical conditions which categorically excluded an immigrant from entering the United States. Little in this nation now remains of leprosy's affright except a sparse scattering of patients, an ingrained mythology—and a barren island off the Rhode Island coast.

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Thoughts on Physician Compensation

We physicians know well that the changes in health-care delivery are driven by the costs, not the quality of or access to medical services. Despite all the rhetoric, money is at the core of both private and public sector initiatives.

Traditionally, physicians have been compensated on a fee-for-service basis. The more services we provided, the better health care we delivered and the higher our earnings. Fee-for-service has particularly improved access to specialty consultation and sophisticated technology. While there have been some abuses, under this payment method physicians were rewarded for hard work, and the nation's health was the beneficiary.

The only problem was that the costs were paid by business and taxpayers, neither of whom directly saw the benefit of these expenditures. And as there are at any given time many more payors for health care than there are consumers of it, a backlash against essentially unlimited services and costs was inevitable.

The result has been a change in reimbursement policies by the third parties. Two approaches are used: one to reduce costs directly, and the second to reduce demand.

To reduce costs, most third parties have developed their own discounted fee schedules. Such discounts simply lower physician compensation without changing the expense dynamic. With reductions as high as 30%, coupled with rising overhead, we doctors are forced to accelerate the pace of our practices. This cuts the time we can spend with our patients, leading to, at best, dissatisfaction and, at worst, missed diagnoses. In responding to economic pressures, physicians must take a lesson from the ultimate businessman, Sam Walmart: "Stack 'em high, sell 'em low." But we aren't selling VCRs, are we?

A second approach is more subtle: reduce demand for services. Capitation is one way. By eliminating any direct fee-for-service arrangement, physicians will presumably provide fewer services and reduce the payors' costs. Gatekeepers are another tactic. Gatekeeper plans can actually reward physicians for providing less care and penalize them for providing more, such as specialty referrals or diagnostic testing.

A recent resolution brought before our House of Delegates condemned capitation and mandatory gatekeeper mechanisms as "inherently unethical and incapable of being legitimized...." A vigorous pro and con discussion ensued about the relationship between patient care and physician compensation. Ultimately, the resolution was defeated, but its importance is worth reviewing for the journal's readers.

First, is the historic nondiscounted fee-for-service really the best payment mechanism? Personally, I think it is. I believe hard work on behalf of our patients pays off in improving their health, and that our compensation should reflect these efforts. While any system can be abused, I think abuse is relatively rare, and it is up to our profession to impose sanctions upon those who are simply gaming the system. Unfortunately, what I think is of little import to the payors of health care. Nondiscounted fees are rapidly disappearing.

Let's look at the argument for capitation. In many ways, there is an appeal for such a system. One may argue that the true nature of a profession is more suited to capitation than to fee-for-service. A profession, by its very nature, provides a service for which compensation is incidental to the service, not its goal, as is the case for a trade. The minister is not paid per parishioner nor is the teacher paid per pupil. Instead, the church and the school provide an appropriate wage to enable their professionals to practice. And in fact, most academic medicine has, until recently, practiced in just this way, with attending physicians seeing little if any direct payment for seeing patients.

(continued on next page)

Apologists for capitation run from Plato to Relman. They believe that this is a purer system because money no longer enters the physician's decisions about patient care. As long as the capitation agreement is generally fair, they argue physicians will be adequately compensated, and money will be saved by eliminating the perceived abuses of fee-for-service.

That's nice. But remember, capitation systems are not designed out of benevolence or to maintain the purity of clinical practice. There is no "ideal" here. The motive is money, the bottom line. Capitation does this by reversing the traditional roles of the insurer accepting risk and the physician providing care. In a scene worthy of Lewis Carroll, now the insurer is *dictating care* and the physician is *accepting risk.* Payors are using their means to justify their ends. We are not that easily duped.

And while we can all agree on the importance of the primary care physician, the gatekeeper concept is even more nefarious. Even Plato would have difficulty proposing that the perverse incentives inherent to gatekeepers will improve patient care. Most of us have already seen this system lead to poor outcomes from denials and delays of necessary care, not to mention the hassle factor for both patient and doctor.

Physicians are not without recourse from these reimbursement gimmicks. First, we continue to lobby against them. State legislation for "Any Qualified Provider" and national efforts for the AMA's "Patient Protection Act" address many of these issues. Second, we can refuse to enter into such contracts. Some of us already have done just that. Unfortunately, the realities of the market place prevent most of us from thumbing our nose at managed care. (It's tough to meet overhead by tilting at windmills.)

And we can look to ourselves. In the decades of traditional fee-for-service medicine, we provided only those services that patients honestly needed. The vast majority of us didn't "churn" patients to generate revenues. The care we provided was necessary and appropriate. Can't we do the same thing under capitation and gatekeepers? After negotiating a managed care contract, can't we practice with the same professional responsibility under the new system as under the old? Are we afraid that without the dollar-for-service paradigm, we will slack off a bit now that our income is guaranteed? Are we worried that now that the money's the same, we will let the ER doctor manage our 3:00 A.M. patient? If our patient needs us at 3:00 A.M., he needs us at 3:00 A.M., no matter what the reimbursement system may be.

Hippocrates said it best, "With purity and holiness will I watch closely my life and my art."

Dickerman Hollister, M.D.
President

The Nothnagel Principle

ROBERT U. MASSEY, M.D.

> Only a good man can be a great physician.
> —Hermann Nothnagel (1841-1905)

WHEN Dr. Alexander Menzer announced his retirement from pediatric practice in West Hartford last month, he recalled Hermann Nothnagel's brief axiom from his Vienna medical school days. Dr. Menzer is 80 years old but that statement of principle relating medicine and virtue had stuck. In late August, at the Jay Healey Convocation for new medical and dental students at the University of Connecticut, Dr. Sherwin Nuland recalled this ancient principle in his address to the members of the classes of 1999: "only a good man can be a great physician." Perhaps they already knew it, but we live at a time when the notion that our off-duty lives are nobody's business but our own as long as we do our jobs reasonably well.

Perhaps this axiom should be called the Nothnagel Principle. But its origins go back to a time much earlier than 1882 and the glory days of the Vienna Medical School: it was already ancient in our profession in the days of Galen. Remember the line in the Hippocratic Oath: "In purity and in holiness will I guard my life and my art."

At this point a late 20th-century ethicist is sure to ask you for a definition of "good." He will ask you to tell him what Prof. Nothnagel meant by "a great physician"! Fair enough. Either question could start a Socratic dialogue, the difference being that Socrates and his crowd of young Athenians were attempting to get at the Truth. Today's philosopher will tell you that there are many truths, just as "ethics" is plural, with few unquestionably right answers. He is apt to tell you this using a language that only another ethicist can claim to understand, or else leave you wondering if the answer really matters.

Nothnagel's view of the world, according to the medical historian Erna Lesky, was "inspired by his humanism and nurtured by German classicism."[1] In other words, his ethical system derived from Kant and Hegel, Plato and Aristotle, all against a background of Augustine and Luther, for each of whom Truth was an absolute discoverable by reason (at times assisted by grace). But my guess is that he learned to discern right from wrong and to do the right thing as a child at home in Alt-Lietzegöricke in Brandenburg. Men and women, good or bad, in the 19th and early 20th century were quite sure of the content of their common ethics, and believed they could recognize the good, the true, and the beautiful even without rehearsing Kant or Rousseau.

Present doubts about our willingness to agree on a common morality are compelling evidence that we are leaving one age behind and stumbling half blinded into the next, which today we may call either "postmodern" or the "New Age," depending on a point of view that will change tomorrow. Is it any wonder that we make a virtue out of necessity, extolling multiculturalism, pluralism, and ethical relativism as manifestations of enlightenment? If you don't know "where you want to get to," said the Cat.... "Then it doesn't matter which way you go."

But we have been thinking only of philosophers and ethicists, politicians, journalists, academicians, and other opinion makers—surely no more than five percent of the population. Those students who heard Dr. Nothnagel speak of the connection between being a good person and a great doctor, as well as those who heard Dr. Nuland more than a century later remind them of the great traditions of our profession and the Nothnagel Principle, understood what had been said. Dr. Menzer knew what he meant by "a good person" when he quoted the Viennese professor. Our patients, too, few of whom spend time thinking about autonomy and beneficence, know good and evil when they see it.

The goodness they know is more than moral rules and ethical reasoning, as important to our understanding as these may be. Goodness has to do with how lives are lived, and for whom and to what purpose. Robert Coles wrote somewhere that each of us is a whole, undivided person, that we cannot be amoral or unloving in one part of our lives and great physicians in another. Even if our students learn to be technically elegant, intellectually unchallengeable, and politically and socially correct, if they are not good citizens, good fathers and mothers, husbands and wives, friends and lovers, their medical lives will be dry as dust, and their patients will have been cheated, even perhaps at risk.

ROBERT U. MASSEY, M.D., Professor Emeritus, Division of Humanistic Studies, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington.

REFERENCE

1. Lesky E: *The Vienna Medical School of the 19th Century*. Baltimore: The Johns Hopkins University Press, 1976: 279-90.

Mr. Timothy Norbeck Elected President of the American Association of Medical Society Executives (AAMSE)

Mr. Timothy Norbeck, Executive Director of the Connecticut State Medical Society (CSMS) and resident of North Haven, has been elected President of the American Association of Medical Society Executives (AAMSE). He was inaugurated as the 50th president at the annual meeting held in August in San Francisco, California. As president, he will continue to foster the AAMSE's goal of advancing professionalism in medical society management.

Mr. Norbeck, a graduate of Hamilton College, has been working in medical society management for more than 27 years. He began his career with the American Medical Association and then the Rhode Island Medical Society. For the last 18 years he has been the Executive Director of the Connecticut State Medical Society. In 1993, the House of Delegates of CSMS awarded Mr. Norbeck an honorary Doctor of Medicine degree. He has authored numerous articles and given many addresses on health-care issues nationwide.

In addition to his extensive involvement with the AAMSE, including serving on its Board and task force committees, he is an advisor to the American Medical Association's Executive Vice President. Mr. Norbeck has been an active volunteer for the American Cancer Society—Connecticut Division since 1980. He has served on various committees and as Chairman of the Board and, in 1987 received the American Cancer Society's National Bronze Medal, the Society's highest honor.

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This Month's Reading in Review

TIMOTHY B. NORBECK

"The problem with the theory of a market-driven, managed-care system is that consumers-patients have no real voice. They can't opt out of a plan if their employer offers only one. Much of the savings being wrung out of health care at the expense of physicians and patients are going to pay for a new layer of administration, huge corporate salaries and investors' profits. It's also worrisome to have Congress and state legislators getting involved in medical decisions that should be made, without coercion, between physician and patient."

Chicago Tribune Columnist, Joan Beck
(11 July 1995)

Question to Bruce Vladeck (head of HCFA): "Managed care doesn't save Medicare any money today. Why not?"

Vladeck: "For two primary reasons. First, our enrollment suffers from a significant selection bias. Overwhelmingly, it's the younger and healthier Medicare beneficiaries who go into managed care. That leaves the older, sicker beneficiaries in fee-for-service and limits the savings.... Second, HMOs, including those with Medicare beneficiaries, have to achieve an enormous drop in inpatient and especially outpatient utilization just to break even. That's a reflection of how high their overhead is. HMOs spend between 12% and 25% on administration, marketing, profits, and so forth. On the other hand, the administrative overhead in the Medicare program is less than 2%."

Medical Economics (10 July1995)

A survey released in mid July by the Commonwealth Fund found that working Americans in managed care plans are less satisfied with their plans than those in fee-for-service plans.... Commonwealth Fund President, Karen Davis said, "There is a pattern of dissatisfaction with choice and quality of doctors, access to specialty and emergency care and waiting time for appointments...." The Harris survey (conducted in Boston, Los Angeles, and Miami) was "in stark contrast" to those that have been released by the managed care industry.... To no one's surprise, the GHAA (which represents over 380 HMO member plans nationwide) called the Commonwealth Fund results "flawed and misleading."

Boston Herald (20 July 1995)

"It's frightening to see that we are letting these HMO executives take the medical decisions away from our doctors. The health maintenance organizations are for profit, but whose profit? Wake up, America! Your health care is being taken away from you."

An Edina, Minnesota, woman in a letter to the
New York Times (13 July 1995)

Employers in Minnesota are reconsidering their association with the state's three largest HMOs (Health Partners, Blue Cross & Blue Shield, and Alliana Health Systems) because of concerns that they "are spending millions of dollars on business matters instead of medicine, are engaging in destructive price wars and are stifling rather than stimulating new approaches to care." Said Fred Hamacher, benefits chief at Dayton Hudson Corp. and chairman of the 22-member employer coalition: "The plans are competing on all the wrong things...." Mr. Hamacher also went on to say that "We want our employees to have a long-term relationship with their doctors. I can't win if they're moving from provider to provider."

Wall Street Journal (21 July 1995)

"Health care in the state (Minnesota) is dominated by an oligopoly of HMOs and insurance companies that discourage competition, shift costs from the powerful onto the weak and keep state regulators in the dark about what's really going on."

A report issued by Citizens Organized Acting
Together (COACT) which appeared in the
Minneapolis Star Tribune (31 July 1995)

The eight hospitals that treated those injured by the April 19 Oklahoma City bomb blast estimate they have spent $3 million on care, excluding follow-up treatment and rehabilitation.

Modern Healthcare (24 July 1995)

Only in America: A Wisconsin man convicted more than 30 times for indecent exposure was turned down for a job as a park attendant.... He sued on the grounds that he never exposed himself in a park, but only in libraries and laundromats.... Wisconsin state employment officials agreed that there was "probable cause" that the flasher was the victim of illegal job discrimination.

Vital Speeches (15 July 1995)

TIMOTHY B. NORBECK, Executive Director, Connecticut State Medical Society.

Letters to the Editor

Letters to the Editor are considered for publication (subject to editing and abridgment), provided that they are submitted in duplicate, signed by all authors, typewritten in double spacing, and do not exceed 1-1/2 pages of text (excluding references). They should not duplicate similar material being submitted or published elsewhere. Letters referring to a recent Journal article should be received within six weeks of the article's publication.

"One Immigrant's View: Racism in America"

To the Editor: Dr. T.V. Rajan's article titled "One Immigrant's View: Racism in America," not only was interesting to read, but reflected what I've heard from many other colleagues of mine from India.

Understandably, an individual's opinions regarding racism in a country are based on his or her own experiences, and I must admit that many share the opinion about discrimination and racism in the United Kingdom. However, my experiences in the U.K. were quite the opposite during the two years that I spent there where I found that the people were extremely friendly and helpful, and I made some of my best friends there who still are in constant touch with me. Whether this is a reflection of change in attitudes over time (as I was in the U.K. between 1991 and '93, as compared to Dr. T.V. Rajan's visit in the 1960s), or was a reflection of regional differences (as I worked mostly in northeast England and Scotland), is hard for me to conclude.

I do share Dr. Rajan's opinion that racism is a part of human nature, but also think perception of "racism" is indeed variable. It's hard to deny the fact that first generation aliens in this country have a constant feeling of insecurity and uneasiness and tend to perceive even some common day-to-day happenings as racism.

Identification of self with the country seems to be more common in countries like U.K. and India, places with long histories. This does not automatically mean that they are more racist than the U.S.A. because this is a land of immigrants, and most people trace their ancestry to other cultures. I wonder if this plays a key role in people from different cultures feeling more "accepted" here?

Nagarajan Ramakrishnan, M.D.

Resident in Internal Medicine
University of Connecticut School of Medicine
Farmington

Medical Ethics

Letter to the Editor: I am working on a book on medical ethics and would like to enlist the help of other physicians to answer this question: Have you ever faced an ethical dilemma, and if so, how did you resolve it?

I am interested in all aspects of medical ethics—human experimentation, ethics of reproductive technology, abortion, medical treatment of the uninsured and poor, malpractice, physician assisted suicide, the right-to-die (why some doctors do not honor Living Wills), genetic counseling, genetic manipulation, euthanasia, kidney, lung and heart transplant, use of fetal tissue, or any other situation concerning an ethical dilemma.

Please reply to: Claude A. Frazier, M.D., 4C Doctors Park, Asheville, NC 28801.

Claude A. Frazier, M.D.

Asheville, North Carolina

Physicians United and Ignited!

Letter to the Editor: I applaud Dr. Donn Barton for his well-written and meaningful Letter to the Editor in *Connecticut Medicine*, August 1995. I agree with him whole heartedly, and wish there were some way to ignite a desire for action among our colleagues.

In 1994, I submitted a Letter to the Editor of *Connecticut Medicine.* It actually was a copy of my letter to Congressman Christopher Shays, and was published at a time when a concerted action by united physicians would have been most appropriate and productive. Nothing happened.

I still think that the doctors, **if united and ignited**, could do a lot to turn the tide. Thus far, we doctors have not done as well as the little boy who stuck his finger in the dike in Holland.

Dr. Barton's letter certainly was a fine statement, and I hope it gets a great response from our colleagues.

Arthur Koffler, M.D.

Stamford

From the Executive Director's Office

CALL

SEMI-ANNUAL MEETING OF THE HOUSE OF DELEGATES

The 1995 Semi-Annual Meeting of the House of Delegates will be held at the Ramada Inn, 275 Research Parkway, Meriden. The meeting will commence at 12:30 P.M. on Wednesday, 15 November and will continue until all business has been concluded.

Dickerman Hollister, Jr., M.D., President
Howard J. Wetstone, M.D., Speaker of the House
John P. Bigos, M.D., Secretary

11:30	Registration of Delegates
	Luncheon
12:30	Call to Order
	Business of the House

INTRODUCTION OF RESOLUTIONS

Article V, Section 12, Par. 3 of the Bylaws of the Society provides that:

Resolutions may be introduced by any Active, Life Member, Student Member or Postgraduate Physician Member of The Society, in compliance with the following provisions.

a. All resolutions, reports and similar items of business submitted in writing and received at the office of the Executive Director not later than thirty days before the date scheduled for that meeting shall be considered as regular business of the House of Delegates.

b. Component county associations or the Student Member or Postgraduate Physician Member Associations whose meetings are held later than thirty-five days prior to the date of the House of Delegates shall be allowed five days after the close of such meeting in which to submit resolutions, reports and similar items of business to the Executive Director's office and still have such material considered as regular business. In no event, however, may such resolutions, etc., be considered regular business if they are received later than fifteen days prior to the date of the meeting.

c. Reports, recommendations, resolutions or other new business may be presented to the House of Delegates by the Council of the Society at any time and shall be considered as regular business.

d. Any business which does not qualify as regular business in accordance with the foregoing provisions may be accepted for consideration by a majority vote of the delegates present and shall be referred at once by the Speaker to a reference committee. When business is introduced under the provisions of this paragraph the vote shall be taken without debate, except that the introducer shall be allowed not more than two minutes to explain why it should be considered as regular business.

(continued on next page)

OLD BUSINESS:
PROPOSED AMENDMENT TO THE BYLAWS

The following proposed amendment to the Bylaws was presented to the House of Delegates on 10 May 1995 and was tabled for consideration and action at the next regular meeting of the House of Delegates.

In accordance with the Bylaws, this amendment is being published in *Connecticut Medicine* "on one or more occasions prior to the next meeting....at which meeting the amendments shall be taken off the table and acted upon by the House of Delegates."

SUBJECT: ESTABLISHMENT OF COMMITTEE ON PHYSICIAN HEALTH IN CSMS BYLAWS

ARTICLE X—COMMITTEES OF THE COUNCIL

Section 3. Physician Health Committee.

The Society shall have a Physician Health Committee to act as a medical review committee engaging in peer review to gather and review information relating to the care and treatment of patients, to evaluate and improve quality of care rendered in the State of Connecticut, and to reduce morbidity and mortality. The Committee shall promote or engage in activities designed to achieve those objectives, including engaging in activities designed to improve the quality of health-care services rendered by physicians or others by improving and monitoring their health status.

The Committee shall work with the Physician Health Program of The Society, which Program shal, on behalf of the Committee, execute and perform the functions of the Committee to improve the quality of health-care services rendered. The Committee shall have such members, representatives, and advisors as the Council may, from time to time, consider necessary or advisable to assist the Committee to discharge its duties and achieve its goals and functions. Any member of The Society in good standing may be appointed to serve on this Committee. The terms and duties of members serving on this committee or as representative or advisor shall be set by the Council but, in any event, shall be reviewed annually by the Council.

BOOK REVIEW

A Miracle and A Privilege: Recounting a Half Century of Surgical Advance

Francis D. Moore, M.D., xii, 432 pp., illus.,
Washington, D.C.: Joseph Henry Press; 1995.
Price: $29.95. ISBN: 0-309-05188-6.

About 15 years ago a well-known medical historian observed that the time had come to consider much of 20th-century medicine as history, no longer journalism. She had in mind, as I recall, especially medicine since World War II, a period then that spanned 35 years, a professional generation. In this book, *A Miracle and a Privilege,* Dr. Moore has written his autobiography along with a historical account of the major surgical advances from the time he entered Harvard Medical School in 1935 up until last year. We know of his fame in academic surgery; we learn that he was, and remains, an accomplished pianist and composer; a sailor; and those who read his book will find that he is also a first-rate story teller.

His life story, rather their life story, for his wife Laurie was always an integral part of it, weaves in and out of his involvement in those remarkable advances in surgery that amazed the world during the Golden Age of medicine. Those of us of his generation whose professional lives were formed during the hey-day of the NIH after 1950 know that neither we nor our immediate successor generation will see the like in our lifetimes again. A parallel development occurred in the space program reaching its peak in 1969 and the early 1970s with the manned moon flights. Transplanting organs and walking on the moon! Dr. Moore's role in organ transplantation is well known, but even in the space program he had his part to play, serving on a number of NASA advisory committees right up to the present . A paper, "Radiation burdens for humans on prolonged exomagnetosphere voyages," published in 1992, is, he writes, " probably the last scientific paper I will ever publish." His first was in 1943.

As a history of the past 50 years of surgical progress, this is not merely an account of "one damned thing after another," cataloging events and people, but rather a series of tales, from the Cocoanut Grove fire to liver transplantation, their science and technology and clinical importance, as well as the very human stories of the men and women who made them happen. Almost all of these stories of surgery and science were in one way or another related to Francis Moore and his department at the Brigham, but include as well patients, surgical colleagues, other physicians, biomedical scientists, and men and women from all over the world whose contributions were critical. They are lively tales of failures and successes filled with optimism and high humor!

Academic medicine is a small world. Though I was a but a second-year medical resident in a midwestern city in July 1948, I recall our amazement when Dr. Francis D. Moore, only 35 years old, little older than we were, was named Moseley Professor of Surgery at Harvard, and Surgeon-in-Chief at the Peter Bent Brigham Hospital; he was to remain so for 28 productive years. When he retired from these responsibilities, he did not relinquish his leading role in academic surgery. Afterward came the NASA committees, book editorship of *The New England Journal of Medicine,* fund raising for the hospital, appointment to the Board of Regents for the Uniformed Services University of the Health Sciences, and chairman of the Massachusetts Health Data Consortium. In 1982, at the Harvard Medical School bicentennial, he received an honorary doctorate, and in 1990 a new surgical chair at Harvard was named in his honor.

Moore did some of the earliest work in body composition using isotope dilution, publishing a paper in *Science* in 1946 "Determination of total body water and solids with isotopes." Shortly thereafter his work involved the study of metabolic changes following trauma and during surgical convalescence, work later published in 1959 in his book, *Metabolic Care of the Surgical Patient.* Then, three years after his appointment to the Moseley Chair, the renal transplantation program began. At first progress was disappointing, but in 1954, Joseph Murray made history at the Brigham by transplanting a kidney from the patient's identical twin. The 22-year-old patient who was dying from end-stage renal disease when the operation was performed lived eight more years before developing glomerulonephritis in the transplanted kidney. The technique had been established, but it would be another eight years before immunosuppression made organ transplantation acceptable surgical treatment.

It was Moore's determined and creative leadership as Surgeon-in-Chief that defined his career when he took over at the Brigham as Moseley Professor in 1948. To rebuild a surgical staff of aging generalists to one that could take advantage of the changes in medicine and surgery that were just around the corner was the task facing this new, young chairman in July 1948. In developing surgical specialties, the Brigham, he wrote, "was almost dead in the water." One of his first appointments was Dwight Harken to head up thoracic surgery. Harken had just a few months before opened a stenotic mitral valve at the Boston City Hospital (missing being first by four days!). Although six of Harken's first 10 mitral patients died, cardiac surgery was now underway with the support of Lewis Dexter in the cath lab, and cardiologists Samuel Levine, Bernard Lown, Richard Gorlen, and James Dalen. When Harken died in 1993, "cardiac surgery," Moore wrote, "is the largest new field of surgery to have

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developed in the half century since World War II.

A Miracle and a Privilege is an apt title. Surgical advances of the kind we have seen in the past 50 years depend on both technology and science. Computer technology and molecular biology, like space technology and physics were given a boost after 1945 by the war just ended and by political events that made American leadership in science and technology a top national priority. For individual genius, talent, virtue, and vision to be on the spot ready to seize the day in each instance is unique, and hence a kind of miracle, and for that fortunate person, a high privilege. His book is Dr. Moore's expression of gratitude for this gift of privilege. Laurie, his wife and companion of 53 years, was killed in a tragic motor accident in the summer of 1988. Two years later he married Katharyn Saltonstall, a widow and an old family friend. "Since Laurie's death and my marriage to Katharyn, I seem to have become a more religious person," he wrote. "It is sad that older people acquire religion because they need it." Perhaps in part for this reason, he found *Miracle* and *Privilege* just the right words for the title of his autobiography.

Robert U. Massey, M.D.
Professor Emeritus
University of Connecticut School of Medicine
Farmingon

CALL FOR PAPERS

Members of the Connecticut State Medical Society reading papers before other organizations are invited to submit their papers to the Journal for consideration. Authors preparing manuscripts for submission to *Connecticut Medicine* should consult **Information for Authors**. This is published in most issues of *Connecticut Medicine* or may be obtained from the Journal office. Adherence to the instructions will prevent delays both in acceptance and in publication.

Papers prepared on a word processor should be submitted on a diskette along with the hard copy.

Please send them to:

Robert U. Massey, M.D.
Connecticut Medicine
160 St. Ronan Street
New Haven, CT 06511

IN MEMORIAM

BOOK, DONALD T., Case Western Reserve University School of Medicine, 1943. Dr. Book was the former medical director of the Life Division of Aetna Life and Casualty Company. He was a member of the Hartford County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Book died 20 June 1995 at the age of 77.

BURNHAM, BERNARD A., Tufts University School of Medicine, 1934. Dr. Burnham practiced ophthalmology in Waterbury for more than 40 years and served on the staff at both Waterbury Hospital and St. Mary's Hospital. He was past president of the Waterbury Medical Association, a member of the New Haven County Medical Association where he served as president from 1967 to 1968 and as a delegate to the Connecticut State Medical Society for many years, the Connecticut State Medical Society where he served on numerous committees from 1970 to 1992, and the American Medical Association. Dr. Burnham died 31 May 1995 at the age of 87.

DUNSMORE, REMBRANDT H., Hahnemann Medical College, 1943. Dr. Dunsmore specialized in neurological surgery and was associated with Hartford Hospital for over 40 years. In 1973, he was named chief of staff at Hartford Hospital and director of the neurosurgical department the following year. Dr. Dunsmore served on the staff of the Newington Children's Hospital and served as department chief until 1973. In addition to various state and national neurological surgery societies, Dr. Dunsmore was a member of the Hartford County Medical Association, the Connecticut State Medical Society where he served on various advisory committees from the 1960s to the 1970s, and the American Medical Association. Dr. Dunsmore died 6 July 1995 at the age of 77.

GREINER, GEORGE F., Vanderbilt University School of Medicine, 1940. Dr. Greiner maintained a private family practice in Kent and for 40 years served as the Kent School physician. He was a former state medical examiner for the town of Kent. Dr. Greiner was a member of the Litchfield County Medical Association where he served as president from 1969 to 1970, the Connecticut State Medical Society, and the American Medical Association. Dr. Greiner died 7 July 1995 at the age of 84.

KISS, GEORGE T., Cornell University Medical College, 1951. Dr. Kiss maintained a private practice for internal and pulmonary medicine in Fairfield county. He was an associate clinical professor of medicine for Yale University School of Medicine. From 1970 to 1990, Dr. Kiss was medical director of respiratory therapy services and the School of Respiratory Therapy Services, as well as chief of the pulmonary diseases division at St. Vincent's Medical Center. He was a member of the Fairfield County Medical Association and the Connecticut State Medical Society. Dr. Kiss died 1 July 1995 at the age of 69.

MALLOY, EDWARD F., Cornell University Medical College, 1928. Dr. Malloy was a general practitioner in Stamford prior to his retirement in 1971. He served as president of the Stamford Medical Society from 1967 to 1968 and was a member of the Fairfield County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Malloy died April 1994 at the age of 94.

MASSEY, DANIEL M., Hahnemann Medical School, 1936. Dr. Massey, an anesthesiologist, served as chairman of the Bridgeport Hospital department of anesthesiology for 40 years and also served on the hospital's executive board. In addition to local, state, and national anesthesiology societies, Dr. Massey was a member of the New Haven County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Massey died 28 July 1995 at the age of 86.

METHOT, LAWRENCE G., Georgetown University School of Medicine, 1958. Dr. Methot practiced general surgery and gynecological surgery in Bridgeport from 1963 to 1995. In addition to the American College of Surgeons, he was a member of the Fairfield County Medical Association and the Connecticut State Medical Society. Dr. Methot died 5 July 1995 at the age of 62.

PHILBRICK, CLEMENT J., Tufts University School of Medicine, 1955. Dr. Philbrick practiced obstetrics and gynecology in Milford for 28 years until his retirement in 1990. He served on the staff of Milford Hospital from 1962 to 1990 where he was chief of staff from 1978 to 1980 and chairman of the department of obstetrics and gynecology from 1980 to 1990. Dr. Philbrick was a member of the New Haven County Medical Association and the Connecticut State Medical Society where he served on the committee on maternal morbidity and mortality from 1977 to 1992. Dr. Philbrick died 22 June 1995 at the age of 64.

RUBY, ROBERT J., Baylor College of Medicine, 1936. Dr. Ruby practiced radiology in Waterbury for 25 years. In addition to the American College of Radiology and the Waterbury Medical Association, he was a member of the New Haven County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Ruby died 5 June 1995 at the age of 86.

(continued on next page)

SICKLICK, ELLIOT, Faculty of Medicine University of Geneva, Switzerland, 1951. Dr. Sicklick was the former chief of pathology and director of laboratory medicine at St. Francis Hospital and Medical Center. He was also a former instructor at the Yale University School of Medicine and at the University of Connecticut School of Medicine. In addition to membership in various local and national pathology societies, Dr. Sicklick was a member of the Hartford County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Sicklick died 30 June 1995 at the age of 73.

ZIMMERMAN, HARRY M., Yale University School of Medicine, 1927. In 1930, Dr. Zimmerman established a neuropathology section and service at Yale University School of Medicine where he taught and conducted research. He joined the staff of the Montefiore Hospital for Chronic Diseases in 1946 as chief of its laboratory division. Dr. Zimmerman was a member of the New Haven County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Zimmerman died 28 July 1995 at the age of 93.

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***Physicians wishing to locate* in Connecticut may call the office requesting opportunities in their specialty. Also, candidates are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.**

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

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OPPORTUNITIES FOR PRACTICE

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Free Radicals, Oxidative Stress, Oxidized Low Density Lipoprotein (LDL), and the Heart: Antioxidants and Other Strategies to Limit Cardiovascular Damage

STEPHEN T. SINATRA, M.D. AND JAN DEMARCO, R.N.

ABSTRACT—The heart is the most susceptible of all the organs to premature aging and free radical oxidative stress. Clinical research has clearly documented the role of free radical damage and the progression of numerous degenerative diseases, particularly cardiovascular disease. This may be the result of acute ischemia-reperfusion injury, endothelial damage of hyperhomocysteinemia, as well as chronic oxidative damage secondary to lipid peroxidation. Fortunately, although highly responsive, and therefore vulnerable to the effects of oxidative stress, the heart is also receptive to the benefits of targeted phytonutrients, antioxidants, and nutritionals.

The effects of antioxidant nutrients have been extensively evaluated in epidemiological, population, and clinical studies. Phytonutrients such as the natural flavonoids and carotenoids found in fresh fruits and vegetables or vitamins C, E, and beta-carotene have powerful antioxidant effects. In addition, minerals like selenium and nutrients such as coenzyme Q10 will minimize free radical risk and optimize a favorable outcome from the ubiquitous presence of oxidative stress on the cardiovascular system.

The B complex, particularly folic acid, B12, and B6 are also essential in the prevention of hyperhomocysteinemia, another major risk factor for the circulatory system. Measures to minimize accumulation of heavy metals in the body, especially iron and copper, which are capable of initiating adverse free radical reactions, will also help to assuage oxidative stress. Thus, the combination of a healthy diet supplemented with antioxidants and phytonutrients may be useful in the prevention and promotion of optimum cardiovascular health.

ALTHOUGH oxygen is necessary for aerobic life, the metabolism of oxygen has ominous metabolic consequences. Abundant circumstantial evidence has suggested that oxidant by-products of normal metabolism (free radicals) are involved in the pathogenesis not only of the degenerative diseases of the 20th century, but also in aging itself. However, free radicals also play a key role in normal biological functions. This obviously seems to represent a paradox. Although research has shown that free radicals may play a fundamental role in supporting life processes such as mitochondrial respiration,[1] platelet activation,[2] leukocyte-phagocytosis,[3] and prostaglandin synthesis,[4] these unstable, highly charged, and deleterious atoms have been incriminated as a cause of extensive damage to lipid membranes, organelles, and even DNA itself. This paradox of free radical chemistry has generated interest among health-care professionals, especially those interested in preventive medicine.

Free Radicals and Endogenous Antioxidant Systems

A free radical is a molecule with an odd number of electrons. Stable chemical molecules such as oxygen contain paired electrons. In contrast, many highly unstable or extremely reactive compounds contain unpaired electrons. The activation of oxygen may lead to the creation of a number of free radicals by producing unpaired electrons. The mitochondrial inner membrane reduces

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oxygen to water by the addition of a sequential transfer of four electrons. This involves a mechanism in which the oxygen molecule undergoes reduction, gaining electrons and subsequently forming molecular fragments with unpaired electrons and very high chemical reactivity.[5] As unpaired electrons can be transferred to a nonradical, these potential reactions create another free radical, thereby setting up a chain reaction of electron transfer. Such chain reactions may proceed thousands of times before the reaction is terminated.

Once the reduction of oxygen has occurred, inevitable by-products called reactive oxygen species (ROS) are formed, the first of which is the superoxide anion (O_2^-). Superoxide is very toxic and travels great distances. Hydrogen peroxide (H_2O_2) is generated by the interaction of two superoxide anions. A reaction between the superoxide anion and the hydrogen peroxide leads to the formation of the most damaging hydroxyl radical (OH) (Table 1).[6] The hydroxyl radical is highly reactive and can set off toxic free radical chain reactions. A major source of endogenous free radicals occurs during normal oxidative metabolism in the respiratory mitochondrial chain. Under normal conditions, 95% to 98% of molecular oxygen consumed by cells is reduced to water by the addition of four electrons. The remaining 2% to 5%, however, are reduced by a univalent pathway giving rise to reactive free radicals even during daily homeostatic oxidative stress (Table 2).[7]

The formation of free radicals in neutrophils is also a normal intracellular physiological process involved in defending the body against invading microorganisms. However, when reactions of phagocytosis and inflammation are overwhelming, free radicals may then be released into the extracellular space and injure the surrounding tissue. Such overwhelming inflammation, and other high free radical situations such as radiation, arachidonate metabolism, and the extraordinary radical flux occurring during reperfusion/ischemia can cause widespread damage to cells, basement membranes, mitochondria, and even DNA itself. Sudden bursts of ROS under abnormal conditions undergo inadequate detoxification by the organism's natural endogenous enzyme defense systems. This results in cellular injury. Such oxidative stress resulting from reperfusion injury in myocardial ischemia may also occur with thrombolytic therapy in myocardial infarction or during coronary artery bypass surgery.[8]

Table 1.—Free Radical Species

$$2O_2 + NADPH \longrightarrow 20_2^- + NADP^+ + H^+$$
$$O_2^- + O_2^- + 2H \longrightarrow H_2O_2 + O_2$$
$$O_2^- + H_2O_2 \xrightarrow{FE} OH^\bullet + OH^- + O_2$$

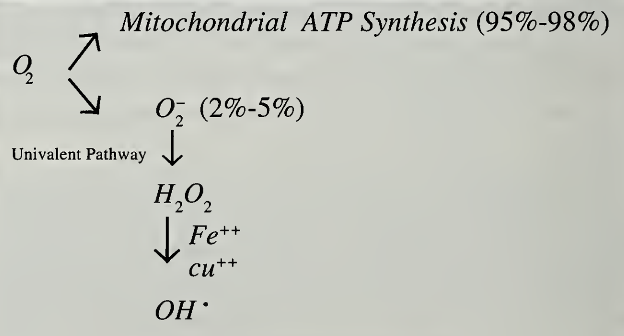
During coronary artery bypass surgery, there is a period of cross-clamping which reduces oxygenation to the heart. With reperfusion (unclamping) free radical oxidative stress and lipid peroxidation cause considerable damage to cellular tissues.[8] A similar mechanism occurs during clot lysis by thrombolytic therapy during myocardial infarction. There are several potential sources of oxygen-derived free radicals in ischemic tissue. The most crucial and best studied is endothelial-derived xanthine oxidase which, in tissue, is a dehydrogenase that cannot reduce molecular 0_2. During ischemia, however, xanthine dehydrogenase in the endothelial cells is converted to xanthine oxidase. Adenosine triphosphate (ATP) is a product of Krebs cycle activity providing energy to the cell. A degradation product of ATP is hypoxanthine.

During postischemic reperfusion, oxygen enters the cell at high tension (increased flow) combining with hypoxanthine in the presence of xanthine oxidase. This results in the generation of superoxide anions and other free radicals that cause widespread lipid peroxidation and damage to cellular membranes (Table 3).[6,7,8]

Overwhelming free radical activity in the early phase of reperfusion injures the endothelial lining resulting in the loss of endothelium derived vasorelaxants, such as nitric oxide endothelial cell releasing factor (EDRF-NO). The myocardial effects of such free radical stress include denaturation of proteins, tissue edema, and by-products of lipid peroxidation causing monocyte injury and death.[6]

Reperfusion injury in myocardial ischemia has been extensively studied in animal models.[9-11] Pretreatment of animals with free radical scavengers such as vitamin E,[9] superoxide dismutase, and catalase has been shown to protect left ventricular function following ischemia.[10,11] In the human model, pretreatment with coenzyme Q10 (antioxidant, membrane stabilizer, free radical scavenger)

Table 2.—Univalent Pathway/Electron Transfer in Mitochondrial Chain



Reactive Oxygen Species (ROS)

$$O_2 \xrightarrow{e-} \underline{O_2^-} \xrightarrow{e-} \underline{H_2O_2} \xrightarrow{e-} \underline{OH^\bullet} \xrightarrow{e-} H_2O$$

Table 3.—Myocardial Ischemia/Reperfusion Formation of Super Oxide Radicals

Ischemia → *Xanthine DeHydrogenase* → *Xanthine Oxidase*

$ATP \xrightarrow{\text{Catabolism}}$ Hypoxanthine

Reperfusion → O_2 + *Hypoxanthine* +*Xanthine Oxidase* → $2O_2^-$

was effective in preserving left ventricular function in patients undergoing revascularization and coming off heart-lung pump bypass.[12,13] Since the heart may be the most vulnerable of all organs to oxidative stress, research is now aimed at preserving left ventricular function and limiting infarct size via neutralization of ROS in situations of ischemia and reperfusion. Oxidation is also believed to contribute to acute tissue damage in situations of acute myocardial infarction[14] and thrombotic stroke,[15] as well as to the oxidative changes occurring in serum low-density lipoproteins (LDL) over time,[16] or to the atherosclerotic lesions of homocysteinemia.

In 1969 McCully first proposed his hypothesis concerning vascular pathology resulting from homocysteinemia.[17] Unfortunately, he was many years ahead of his time. His hypothesis of homocysteinemia and premature atherosclerosis was not accepted by the medical community. However, over the last few years, there have been several studies demonstrating the connection between high plasma homocysteine levels and occlusive arterial disease including coronary atherosclerosis, peripheral vascular disease, and carotid artery disease.[18-25] These studies, including the Harvard Physician and Framingham studies, indicated that high plasma homocysteine levels are indeed a risk factor for cardiovascular disease. Unfortunately, plasma homocysteine has not received the attention that it deserves. Hypercholesterolemia is still the major metabolic risk factor that most physicians accept.

Although, the possibility of interactions of synergy between cholesterol and homocysteine has already been noted,[23] most cardiologists do not consider homocysteine as an independent risk factor for cardiovascular disease. Measuring plasma homocysteine concentrations may be academic in some instances, but it should be considered in any young patient with myocardial ischemia.

It is also important to note that hyperhomocysteinemia is not limited to men. In one study, women with coronary disease had higher homocysteine levels than did the control group.[24] In another study comparing men and women with high homocysteine levels, women evidenced greater carotid thickening ratios than their male counterparts.[25] Although the mechanism of homocysteine associated endothelial damage remains unclear, the fact that it may be inhibited by the addition of catalase suggests that the free radical hydrogen peroxide produced during the oxidation of homocysteine plays a role.[26] Thus, free radical oxidative stress is believed to contribute to cardiovascular disease through a number of acute and chronic pathways, including reperfusion and ischemia, direct toxicity to endothelium by homocysteine, and the chronic oxidative changes occurring in LDL over time.

Antioxidant Defense

Fortunately, the body has a complex antioxidant defense system against free radicals. If it were not for the quick action of these protective antioxidant defense systems, thousands of chain reactions of free radicals, generated within seconds, could quickly cripple and destroy cellular functions. The body's natural antioxidant systems include superoxide dismutase, catalase, and glutathione peroxidase. Most of these naturally occurring enzymes deactivate free radicals by using them to generate safer chemical reactions. The most effective line of defense against hydrogen peroxide is catalase. The first line of defense is far from efficient, particularly in mitochondria under high oxygen stress. The fate of superoxide is destruction by the enzyme superoxide dismutase. Some superoxide reacts with water to form hydrogen peroxide which is known to exist in high concentrations in the innermost compartment of the mitochondria. The most potent destructive free radical, the hydroxyl radical (OH), is generated from the hydrogen peroxide molecule in the presence of transition metals such as copper and iron. It is the hydroxyl radical that is the most potent factor in the chain reaction formation of the polyunsaturated fatty acids (PUFA) peroxides.

Polyunsaturated Fatty Acids (PUFA)

Fatty acids in the body found in cellular membranes are especially susceptible to oxidative damage. Highly unsaturated fatty acids are more susceptible to oxidation than saturated fatty acids. Although saturated fatty acids are least susceptible to oxidation, they are more atherogenic. Saturated fatty acids affect the level of liver lipoprotein receptors which cause an elevation in plasma cholesterol. Evidence suggest that dietary oils containing a greater proportion of monounsaturated fats such as olive oil, may provide the best protection for lowering cholesterol and reducing susceptibility to lipid peroxidation at the same time. Polyunsaturated fatty acids commonly found in vegetable oil, such as safflower, sunflower, canola, and corn oil, are highly susceptible to lipid peroxidation. These polyunsaturated fatty acids, like free radicals, represent a paradox. Although they are essential building blocks for providing cellular elasticity and pliability, they are easily broken down by free radicals. PUFA peroxides and their degradation products are toxic to living systems, especially the cardiovascular system. It has been suggested that PUFA peroxides play the major role in the aging of the eyes[27] and a significant role in the development of atherosclerosis.[28] As lipid peroxides destroy membrane integrity and decrease membrane flexibility and elasticity[29,30] they are implicated in the "response to injury" theory.

This theory has been advanced to postulate the presence of a chemical pathway responsible for the development of atherosclerosis. According to this theory, atherosclerosis is a patchy and "inflammatory" disorder involving the circulatory tree that has been subject to injury as a result of mechanical shear forces and localized chemical instability along tortuous arterial walls. These hemodynamic factors are believed to result in localized areas of endothelial cell injury dangerously increasing cellular permeability. The next step in this cascade is arterial platelet interaction and smooth muscle proliferation

Reactive oxygen species (ROS) in combination with polyunsaturated degradation products present in both serum and arterial wall lipid medium drive the inflammatory process that will initiate the concentration of toxic oxidation by-products in the subendothelial space. Lipid peroxidation and excessive free radical production disrupt plasma membrane integrity and permeability causing alteration of intracellular lipids.[31,32] This process, causing damage to the intima cells, has been suggested as the initial event in the pathogenesis of atherosclerosis.[28,33]

As the hydroxyl radicals initiate the breakdown of phospholipids in cellular and inner mitochondrial membranes, the viability of the cell is threatened.[34] The chemical modification by these free radicals result in an oxidized LDL which in contrast to native LDL, facilitates atherogenesis.[6,16,35-36]

Oxidized LDL as opposed to native, harmless unoxidized LDL is quickly picked up by endothelial cells and systemic monocytes and acts as a chemical attractant for other monocytes. By-products of such oxidized LDL are directly cytotoxic to endothelial cells resulting in a decreased level of endothelial cell releasing factor (EDRF), which is now believed to be nitric oxide.[6,37] Oxidized LDL in the presence of platelets can generate thromboxane (TxA_2). Thus, increased vascular tone and thrombogenesis are more readily activated.[6] Since one of the first reactions in the oxidative modification of LDL is the peroxidation of polyunsaturated acids,[36] it has been suggested that accumulation of LDL in macrophages is the process that drives the formation of foam cells, the key component of the fatty streak.[39] Therefore, it is the oxidation of LDL, which is now believed to be the focal pivotal step in the process of atherosclerosis.

LDL extracted from atherosclerotic lesions show biochemical and immunoreactive properties similar to those of in vitro oxidized LDL.[40] Investigators have presented evidence to suggest that autoantibodies present in oxidized LDL were predictive of pathological situations including myocardial infarction.[41] Thus, it appears that oxidized LDL induced by lipid peroxidation in the presence of autoantibodies to it not only begins the process of atherosclerosis, but also accelerates it. Therefore, it is logical to consider that the prevention of oxidation may retard the progression of atherosclerosis. In addition, the fact that antioxidant therapy slows the progress of early atherosclerotic lesions[42,43] does provide evidence that oxidized LDL does play the pivotal pathogenic role in the mechanism of atherosclerosis.

Strategies to Prevent Free Radical Damage: Antioxidants and Phytonutrients

There is overwhelming evidence that a diet rich in fruits, vegetables, and grains is protective against cardiovascular disease. This may be due to the antioxidants they contain and/or the many phytonutrients present. There have been numerous clinical studies including epidemiological, population, in vitro, animal, and case-control demonstrating the positive effect of targeted nutritional supplements on the cardiovascular system.

Preventing the oxidation of LDL may be the most powerful means of preventing cellular injury leading to atherosclerosis. Many of these studies present convincing evidence that dietary micronutrients with antioxidant properties such as alpha-tocopherol, beta-carotene, ascorbate, and coenzyme Q10 can prevent LDL oxidation and, hence, atherosclerosis.[44-47] Consider the research on vitamin E.

Alpha-tocopherol is the principal lipid-soluble, chain-breaking antioxidant in tissues and plasma. As the predominant antioxidant present in the LDL particle, it blocks the chain reaction of lipid peroxidation by scavenging intermediate peroxyl radicals.[48,49] The evidence that alpha-tocopherol blocks LDL oxidation has been shown in vitro when oxidation is mediated by transition pro-oxidant metals.[50,51] Vitamin E appears especially promising because it is carried directly in LDL particles. Reaven et al showed that long-term suppplementation with large doses of vitamin E alone, but not beta-carotene or vitamin C, increased LDL resistance to oxidative damage.[52] Vitamin E supplementation increased vitamin E levels in LDL by 2.5 fold and reduced lipid peroxidation in LDL by as much as 40%. Although several studies have shown that vitamin E will retard LDL oxidation, the dose required for maximum suppression of LDL oxidation has yet to be determined.

However, in a study by Jialal and others,[53] the investigators noted a relationship between dose-dependent plasma tocopherol level and susceptibility to LDL oxidation.

Their results led the researchers to conclude that the minimum dose of vitamin E needed to decrease susceptibility of LDL to oxidation was 400 IU. They noted no side effects at this level of supplementation or any adverse effect on plasma lipoprotein levels. Other large epidemiological and population studies conducted at the Harvard School of Public Health, have correlated significant reductions in cardiovascular disease with variable dosages of vitamin E supplements. In the Nurses Health Study involving a cohort of approximately 87,000 women, Stamfer reported a 41% reduction in risk of heart disease in nurses taking vitamin E for more than two years.[54] The authors concluded that the apparent benefit was primarily attributed to the use of vitamin E from supplements.

The average intake in the lowest risk group was 200 IU. However, in the Health Professions follow-up study involving almost 40,000 men, Rimm found that men who were taking vitamin E for more than two years had a 37% lower risk of heart disease compared to men who had not taken vitamin E.[55] The average vitamin E intake in the lowest risk group was 400 IU. Thus, in the male population, higher dosages of vitamin E may be required to retard LDL oxidation. In Jialal's study, 48 healthy men were investigated. It appears that in men, the optimal dose is probably 400 IU. However, in women, until a randomized placebo-controlled dose-response design study is performed (like Jialal's study in men), 200 IU of vitamin E should be considered the recommended dose.

There are several other lines of evidence to support the inverse relationship of plasma alpha-tocopherol and atherogenesis. For example, in a major European study of middle aged men, fatality from heart disease was strongly correlated with lowest levels of plasma vitamin E.[56] In another epidemiological study involving a cohort of 5,133 Finnish men and women initially free from coronary heart disease, the association between dietary intakes of vitamin C, vitamin E, carotenoids, and subsequent mortality was studied over a mean follow-up period of 14 years. A total of 244 cases of fatal coronary heart disease occurred during this time. There was a significant inverse relationship between dietary vitamin E intake and coronary heart disease mortality in both men and women. The relative risk of heart disease mortality was 32% lower for men and 65% lower for women in the highest tertile of vitamin E intake when compared to the lowest tertile. Women with both dietary vitamin E and carotenoid intakes in the highest tertile had an 84% lower adjusted relative risk of coronary heart disease mortality than women with both vitamin intakes in the lowest tertiles.[57] The clinical research suggests that vitamin E, whether incorporated in a diet or taken as a supplement, can have major implications on cardiovascular risk.

The direct association of antioxidant vitamin intake on the progression of coronary atherosclerotic lesions had not been explored until the June 1995 landmark study of Hodis and colleagues comparing supplementary vitamin E intake and the progression of coronary heart disease using quantitative coronary angiography as their method of evaluating atherosclerotic lesions

In a cohort of 156 men aged 40 to 59 years with a history of coronary artery bypass surgery, subjects given vitamin E intake of 100 IU per day or greater demonstrated less coronary artery lesion progression than their untreated counterparts. These results indicate an association between supplementary vitamin E intake and angiographically proven reduction in coronary artery lesion progression.[58]

Animal models have also demonstrated decreased atheroma formation when supplemented with vitamin E. In one randomized trial monkeys who were fed an atherogenic diet and given vitamin E supplementation had less atherosclerosis than those given placebo.[59] In another study hypercholesterolemic rabbits fed vitamin E had a 25% reduction in aortic atherosclerotic lesions.[60] Although we have to consider the limitation of applying the results of animal studies to humans, the fact remains that vitamin E shows great promise in preventing LDL oxidation, offering a tremendous impact on cardiovascular disease. The antioxidant activity in vitamin E and other dietary nutrients such as flavonoids and carotenoids (found in fresh fruits and vegetables) may help to explain the preventive benefit of some dietary factors in addition to fat intake in the epidemiological differences in coronary heart disease. Consider, for example, the 25-year follow-up of the seven-country study.[61]

In this study, serum cholesterol was linearly related to coronary heart disease mortality among various cultures. It is interesting to note that absolute coronary heart disease mortality rates and given cholesterol levels support the idea that indicators, other than serum cholesterol, are important in coronary heart disease prevention. The authors of the study indicate "it is not enough to focus solely on serum cholesterol levels to decrease the burden of coronary heart disease in populations." The authors revealed that dietary factors that influence LDL oxidation are of great importance. The Mediterranean and Japanese diets, not only low in saturated fat but rich in antioxidants, may explain the lower coronary heart disease mortality in comparison to other cultures. It is important to note that fresh fruits and vegetables contain not only valuable antioxidant vitamins, but considerable flavonoids, polyphenols, and carotenoids.

Consider that countries with a low fruit and vegetable intake, ie, Scotland, have a higher rate of cardiovascular disease than do countries with a high intake of fresh fruits and vegetables such as Greece. Southern Europeans consume significantly greater amounts of fresh fruits and vegetables than do northern Europeans.

This high intake correlates with lower coronary heart disease incidence.[62,63] Similar findings were noted in France. However, the French diet includes high-fat cheeses, sauces, gravies, pâtés, and other highly saturated fats. This obviously represents a paradox. Why should the incidence of coronary heart disease be lower in the French population, especially when they consume so many foods with high saturated fats? Perhaps, the routine consumption of red wine and vegetables containing vital phytonutrients including tocopherols, carotenoids, flavonoids, phenols, catechins, quercetin, and others may affectively reduce peroxidative tendencies and retard the several interactions involved in arthrogenesis and thrombosis.[64]

In a subsequent study done in the Netherlands, the utilization of dietary bioflavonoids, phenolic acids, and flavonoids with specific ingestion of quercetin reduced the incidence of heart attack and sudden death. The end point of this study was mortality in a male population aged 64 to 85. The results indicate an inverse relationship between the amount of quercetin ingested and the death rate. Green tea, apples, and onions were the foods evaluated which contain generous quantities of quercetin similar to the quercetin found in the red grapes of aged wine.[65]

The effect of red wine and antioxidant activity in serum was addressed in a small study of volunteers drinking red wine.[66] The experiment showed that two glasses of red wine taken before a meal gave considerable antioxidant protection for at least four hours. Those volunteers not consuming red wine had much lower antioxidant activity in their serum. Thus, this small study shows that red wine, indeed, increases antioxidant activity via the flavonoid-polyphenol effect. Carotenoids, however, are an entirely different class of compounds.

Serum carotenoids have also been extensively studied in the prevention of coronary heart disease. Carotenoids are found predominantly in fresh fruits and vegetables with carrots the primary source of beta-carotene and tomatoes the best source for lycopene. Although lycopene has twice the antioxidant activity of beta-carotene, the latter has been the primary focus in studies. This may be due to the fact that beta-carotene has the potential to promote vitamin A synthesis. Research has correlated a high dietary intake of beta-carotene with a reduction in the incidence of cardiovascular disease.[67] Another study reported increased beta-carotene content of subcutaneous fat was also negatively correlated with risk of myocardial infarction.[68]

However, the recent Finnish trial on supplemental beta-carotene failed to show a reduction in lung cancer or cardiovascular disease among heavy smokers.[69] Thus, the enthusiasm for beta-carotene as the "magic bullet" for the prevention of cardiovascular disease has been dampened. However, the Finnish study had serious flaws and limitations in both product intervention and study design. In another investigation of 3,806 men with hyperlipidemia, participants with higher serum carotenoid levels had a decreased risk of coronary heart disease. This finding was also stronger among men who had never smoked.[70]

The Physician's Health Study, now in its final year, followed physicians between the ages of 45 and 80 with a history of a single heart attack or angina who were taking beta-carotene supplements. The results demonstrated a 50% reduction in subsequent coronary events over a five-year period.[71] It was also interesting to note that in this same study a small subset of 333 physicians, taking both beta-carotene and aspirin, did not have a single coronary event over a five year period. In another investigation, Gaziano et al showed the association between fresh fruits and vegetables high in beta-carotene content and subsequent cardiovascular mortality. In this prospective cohort of 1,299 elderly people in Massachusetts, the investigators showed a significant inverse relationship between beta-carotene score and cardiovascular death.[72]

Beta-carotene is not the only carotene with antioxidant activity. Other carotenes present having substantial concentrations in human plasma include alpha-carotene, lutein, lycopene, and beta-cryptoxanthin. There are approximately 600 carotenoids present in nature. Some, as mentioned, have greater antioxidant activity than others. In addition to the modification of LDL, carotenes may also have a favorable effect on prostaglandins.[73] Since beta-carotene represents only one quarter of the total serum carotenoid activity, perhaps there are other carotenoids capable of modifying both LDL oxidation and prostaglandins as well as offering unknown protective properties.

There is a variety of mechanisms providing defenses against free radical damage. Antioxidant vitamins can react in both the aqueous phase and lipid phase thereby protecting tissues against damage by trapping free radicals. Water-soluble vitamin C can quench singlet oxygen radicals. Beta-carotene is the most potent quencher of singlet oxygen and is most effective at low oxygen partial pressures.

Vitamin E is the primary lipid-soluble antioxidant capable of quenching the singlet oxygen radical and is effective at relatively higher oxygen partial pressures.[74] Because the oxidized form of vitamin E can be reduced by coenzyme Q10, the interplay between vitamin E regeneration is significantly improved by the addition of the vital nutrient—coenzyme Q10.

Coenzyme Q10 is another known antioxidant that may stabilize membrane activities as well as prevent the depletion of metabolites necessary for the resynthesis of ATP. Coenzyme Q10 has been demonstrated to scavenge free radicals, especially those produced by peroxidation.[7,75] The pretreatment of coenzyme Q10 in patients undergoing hypothermic cardioplegic arrest demonstrated an improvement in right and left ventricular myocardial ultrastructure.[76]

Other studies have demonstrated the effect of coenzyme Q10 on myocardial protection in coronary artery bypass surgery. These studies suggest that pretreatment with IV or oral coenzyme Q10 is effective in preventing left ventricular depression.[12,13] Perhaps the major impact of coenzyme Q10 is in congestive heart failure and dilated cardiomyopathy. Several studies[7,77-81] of coenzyme Q10 supplementation have demonstrated improvements in left ventricular function, ejection fraction, exercise tolerance, and diastolic dysfunction. Another important action of coenzyme Q10 is its synergistic action with selenium, another powerful antioxidant. In one study there was improved survival in patients taking a combination of selenium and coenzyme Q10 for one year following myocardial infarction. Out of 61 patients, there were six cardiac deaths in the control group (20%) and only one noncardiac death in the experimental group.[82]

The mineral selenium is crucial for the proper functioning of the heart. Selenium levels have been negatively correlated with atherosclerosis. In an observational study of approximately 1,000 men ages 55 to 74, low-serum selenium levels were more frequently associated with coronary heart disease, stroke, and claudication.[83] In another study, plasma selenium levels were measured in 126 hospitalized patients undergoing coronary arteriography for suspected coronary heart disease. The highest levels of selenium were seen in normal coronaries with the lowest levels noted in situations of triple vessel disease.[84] Selenium deficiency has also been reported in cardiomyopathy.[85] Perhaps the major biological importance of selenium, however, is the formation of glutathione peroxidase, the major natural endogenous antioxidant which neutralizes lipid peroxides and hydroperoxides. Selenium, in combination with vitamin C, is essential in the formation of glutathione peroxidase.

Vitamin C, a water-soluble antioxidant, not only regenerates tocopherol, but also enhances the body's total antioxidant system by raising levels of glutathione, a polypeptide amino acid and potent free radical scavenger. In a double blind study, experimental subjects were placed on 500 mg of ascorbate. Vitamin C increased red cell glutathione by 50%. The results of this study revealed that vitamin C in supplemental doses of 500 mg may help to maintain glutathione levels thus improving overall antioxidant status.[86] Although the evidence linking vitamin C to human cardiovascular disease is largely circumstantial, it is well known that many groups known to be at increased risk for cardiovascular disease have lower levels of vitamin C. An analysis of the literature indicates that those groups at risk for coronary heart disease such as men, the elderly, smokers, diabetics, hypertensives, and possibly oral estrogen contraceptive users, have lower plasma vitamin C levels.[87] The connection between vitamin C status and cardiovascular disease will need additional clinical research.

We also need to consider some of the data in the literature concerning the over-zealous use of vitamin C in patients who are prone to iron overload.[88-89] Such patients may accumulate harmful excess iron when given high-dose vitamin C supplements. However, this claim has been questioned by others.[90] Nevertheless, caution with vitamin C supplements should be utilized with patients definitely prone to iron overload such as individuals with genetic diseases, like hereditary hemochromatosis, thalassemia major, or other diseases that promote iron overload. It has been suggested that vitamin C supplements may, indeed, exacerbate iron toxicity, possibly by mobilizing iron reserves.

An overabundance of pro-oxidant metals such as iron and copper can initiate adverse free radical reactions in the body. Iron, copper, and other heavy metals such as lead, mercury, and cadmium can restrict the activities of sulfur and selenium-containing enzymes.[91] Thus, it is important to consider measures to minimize the accumulation of such metals in the body. For example, iron and copper supplements should not be taken unless recommended by the physician. Although iron is necessary for growing children, pregnant women, women athletes, and most menstruating young women, the use of iron in the male adult population should be avoided unless deemed medically necessary.

In summary, the heart is, indeed, the most susceptible of all the organs in the body to free radical oxidative stress. Free radical indices contribute to aging as well as degenerative disease such as cardiovascular pathology. Exogenous antioxidant defenses against this damage include ascorbate, tocopherol, carotenoids, flavonoids, and various other nutritional substances. At the present time, there are many controlled interventional trials with antioxidants that are being carried out world-wide. During the next several years, results from observational studies and randomized trials may permit specific public-health recommendations that go beyond the advice to eat a healthy diet of fresh fruits and vegetables.[92] It is important to counsel patients about dietary guidelines endorsed by the National Cancer Institute that suggest consuming between five and nine servings of fresh fruits and vegetables daily. Unfortunately, fewer than 10% of Americans comply with these guidelines. Many people are, therefore, deficient in many vital nutrients rendering them sufficiently unprotected. Several clinical studies implicate that doses far greater than the RDA are necessary for protection against free radical oxidative stress. It is a simple and established fact that the prevention of premature coronary artery disease can be modified by a healthy lifestyle.

Primary prevention includes strategies such as maintaining ideal body weight and incorporating diets of fresh fruits and vegetables adequate in the essential nutrients designed to minimize damaging free radical reactions in the body. Measures should be taken to minimize the accumulation of toxic metals in the body such as iron and copper. Supplementing the diet with targeted nutritionals including antioxidants such as beta-carotene, vitamins C and E, coenzyme Q10, selenium, and other precious B vitamins is strongly recommended for promoting optimum health.[93,94]

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Severe Hepatocellular Disease as an Unusual Presentation of Metastatic Melanoma

ERIC S. HOLMBOE, M.D., CAROL LANGSFORD, M.D.,
AND MARK A. PERAZELLA, M.D.

ABSTRACT—Melanoma is a cutaneous malignancy with an incidence that is rising. Surgery is curative if performed prior to metastasis. Liver metastasis is common and is often associated with an elevation in lactic dehydrogenase. A rise in transaminases is unusual; typically it is low in these patients. We describe a case of metastatic melanoma which presented as severe hepatocellular disease.

Introduction

MELANOMA is one of the most deadly and unpredictable of all skin cancers. This malignancy can metastasize to virtually any organ in the body, but the liver is one of the most common sites.[1] Liver involvement is typically characterized by an elevated lactic dehydrogenase (LDH) level. We describe an unusual presentation of metastatic melanoma several years after primary resection of the cutaneous lesion.

Case Presentation

A fifty-three-year-old white female presented to the emergency room complaining of epigastric and right upper quadrant pain, later associated with fever and jaundice. These symptoms, along with malaise, headache, and nausea, had started two weeks earlier while she was having lunch. The abdominal pain progressively worsened and the patient noted darkening of her urine. She denied any melena, hematochezia, diarrhea, or constipation.

The patient did not smoke or drink alcohol. She denied intravenous drug use or exposure to hepatitis or to the risk of human immunodeficiency virus (HIV) infection. She denied recent travel, excessive use of acetaminophen, or blood transfusions. Her past medical history was notable for resection of a thin melanoma (Clark level II, Breslow depth 0.5mm) from her abdominal wall two years earlier.

On physical examination she was an ill-appearing women with a temperature of 39°C, blood pressure of 130/70 mm Hg, and pulse 90 per minute. Her skin examination revealed jaundice but no rash or signs of melanoma. Her sclerae were icteric and her oral mucosa dry. No lymphadenopathy was noted in the neck, axilla, or inguinal regions. Chest and cardiac examination was normal. Her abdomen was mildly distended with epigastric and right upper quadrant tenderness. The liver was palpable and firm 3 cm below the right costal margin. A rectal examination was unremarkable and stool was guaiac negative. Neurological examination was normal.

Her admission laboratory data showed a white blood cell count of 12,200/mm^3 with 80 segmented neutrophils and 13 lymphocytes. Her hemoglobin was 13.9 gm/dL, hematocrit 42%, and platelet count 308,000/mm^3 Her electrolytes were normal. Her liver tests revealed a lactic acid dehydrogenase (LDH) of 1,426 IU, aspartate aminotransferase (AST) 680 IU, alanine aminotransferase (ALT) 560 IU, gamma-glutamyl transpeptidase (GGTP) 496 IU, alkaline phosphatase 635 IU, total bilirubin 6.3 mg/dL, direct bilirubin 4.7 mg/dL. Amylase and lipase were normal. A prothrombin time was 13.8 seconds.

An abdominal ultrasound displayed a heterogeneous liver with patchy areas of increased echogenicity, no dilatation of the common bile duct, no gallstones, and a small amount of ascitic fluid. A computed tomographic

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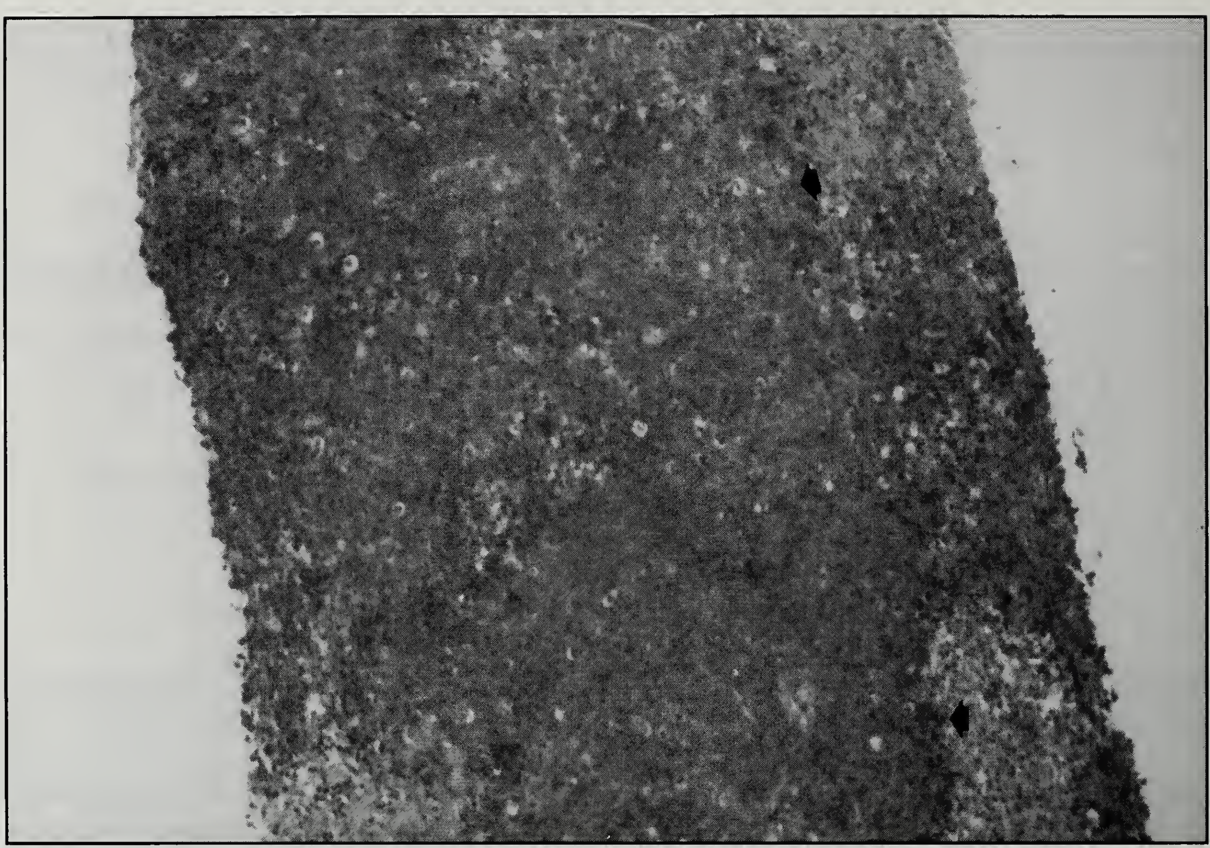

Figure 1.—Low power view of the liver reveals poorly differentiated melanoma with replacement of the liver parenchyma (arrowheads). (10X)

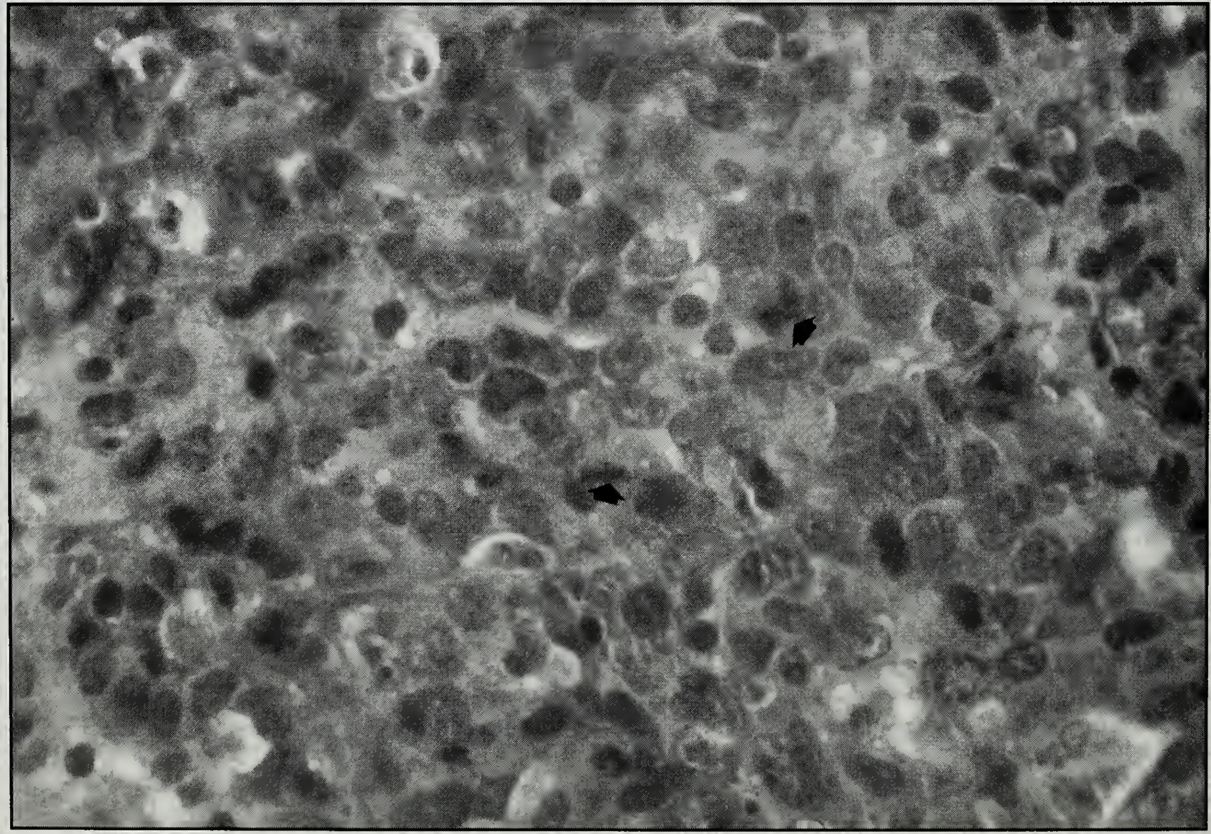

Figure 2.—High power view of the liver reveals many tumor cells with round to oval nuclei, prominent nucleoli and many mitotic figures (arrowheads). (60X)

scan showed an enlarged liver with diffuse low density lesions 1 cm to 3 cm in size. Her alkaline phosphatase, LDH, AST, ALT, and GGTP all remained markedly elevated. Hepatitis A, B, and C serologies were negative. HIV test was negative as well.

A percutaneous liver biopsy was performed. The histologic sections revealed a poorly differentiated neoplasm compatible with melanoma with 50% to 70% replacement of the the liver in a multicentric pattern (Fig. 1). The tumor had invaded the portal veins and the hepatic sinusoids. Severe hepatocyte necrosis was evident while the melanoma cells were arranged in cords and sheets with amphiphilic cytoplasm, round to oval nuclei, and prominent nucleoli. In addition, numerous mitoses were present in the tumor cells (Fig. 2).

Discussion

The liver is a common site of metastases in malignant melanoma, typically resulting from vascular dissemination and rarely by retrograde lymphatic spread. In a series of patients with advanced metastatic melanoma, Einhorn et al documented liver metastasis in 73 of 96 patients.[1] Furthermore, they noted a strong correlation between elevated serum LDH levels and the presence of hepatic metastases in these patients.

While most malignant metastatic disease involving the liver is marked by an elevated LDH level,[2] it appears that elevated LDH levels in patients with melanoma predict liver involvement with high sensitivity.[3-4] What is unusual in this case is the marked elevation of the transaminases, a finding uncharacteristic of melanoma metastatic to the liver. In fact, Finck et al, in their study of the association between LDH and melanoma, demonstrated that LDH was the most important marker of liver infiltration, with only two patients showing a small rise in SGOT (AST) as their initial sign of liver metastases.[4]

In our review of the literature, we could find only one other case report where a picture consistent with hepatitis was present.[5] In this patient, the SGOT (AST) was elevated with a value of 80 IU. The liver biopsy revealed intrasinusoidal metastatic melanoma with reactive mononuclear cells.The etiology of the dramatic rise in transaminases in our patient is not clear but may have resulted from massive tumor invasion with compression of hepatocyte blood supply, direct hepatocyte destruction, or toxicity related to products released by the tumor cells. Regardless of the initiating insult hepatocyte necrosis was present in biopsy sections and likely accounts for the elevated transaminases.

Conclusions

Malignant melanoma is an aggressive skin cancer which possesses the ability to metastasize widely to all organs, especially the liver. When hepatic metastasis occur with melanoma, an elevated serum LDH level is found frequently. Elevated transaminases, especially to the level reached by our patient, are unusual and have not been noted in the large series of patients with melanoma metastatic to the liver. Our patient represents another manifestation of melanoma metastatic to the liver: clinical and laboratory findings consistent with acute hepatitis or hepatocellular injury.

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Telemedicine: Delivering Medical Expertise Across the State and Around the World

HENRY A. SWETT, M.D., LINDSEY HOLADAY, B.A., DAVID LEFFELL, M.D., RONALD C. MERRELL, M.D., JON S. MORROW, M.D., JAMES C. ROSSER, M.D., AND JOSEPH WARSHAW, M.D.

ABSTRACT—Many aspects of medical care can now be delivered at a distance using telemedicine technology. Rapid video and computer-based communication of medical information makes it possible for a physician to "examine" a patient located in another city, to view highly detailed medical images, to consult with distant subspecialists, or to supervise complex medical procedures. This same technology can bring scattered health-care workers together for joint teaching conferences. The Yale Telemedicine Center has initiated a number of such programs ranging from providing consultations in real time to physicians in Saudi Arabia, to interpreting medical images across town or across the state. Telemedicine will become a powerful tool for managed health-care organizations which are responsible for the medical needs of widely distributed patients in a vertically integrated health-care delivery system. This paper reviews the evolution of telemedicine, its technical fundamentals, specific medical applications, and the activities of the Yale Telemedicine Center. Evolving uses for telemedicine in Connecticut are described.

TELEMEDICINE, in its broadest sense, describes the transmittal of medical information from one place to another. Simple telephone and fax communication of laboratory data is certainly telemedicine, but the term is more commonly applied to sophisticated computer and interactive video communication which makes frequent use of digitally transmitted still images such as x-ray films, pathology slides, and clinical photographs. Increasingly, electronic transmission of other clinical information, including real-time physiologic data and live two-way interactive video communication, makes possible many of the same functions of clinical examination, consultation, and treatment that can be done when patient and physician are located in the same place. These technologies are most commonly used to make clinical consultation available to an area that otherwise would not have access to special expertise. Many forms of therapy can also be provided or directed through telemedicine, and the technology is well suited to medical and health-care administration.

Telemedicine using still images can be done over conventional telephone lines but the increasing availability of wide-band telecommunications makes sophisticated medical applications possible. "Wide-band" communications refers to the ability of coaxial cable, fiber optic cable, and satellite link to carry large amounts of digital information very rapidly.

History

Almost everyone has either sent or received telemedicine advice in the past when they have heard or spoken those fateful words over the telephone "take two aspirin and call me in the morning." But it was not until the late 1950s that more sophisticated telemedicine became possible. A pioneering trial provided psychiatric counseling via televi-

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sion in Nebraska in 1959.[1] Shortly thereafter, angiographic images from a fluoroscope were transmitted to a remote location by coaxial cable.[2] In 1968, Massachusetts General Hospital (MGH) established a walk-in clinic at Logan airport which was used to treat and evaluate visiting VIPs as well as ill travelers.[3,4] The clinic was linked to MGH where special consultants provided expertise.

Since then, a number of trials have shown that telemedicine is an effective way of providing specialized care to rural areas.[5] Radiologists were the first to make wide-spread use of telemedicine by adapting personal computers to provide emergency roentgenographic interpretations from home when they are on call.

The use of telemedicine in the United States is developing rapidly. In 1989 there were only three programs in the country providing medical consultation via telemedicine. In 1994, there were 20 such comprehensive telemedicine programs.[6] This rapid expansion has been fueled by government investment: eleven different federal agencies gave $85 million to telemedicine demonstration projects in 1994-95, and the U.S. military invested another $70 million in this technology.[5] One of the motivations for such heavy investment is that telemedicine is viewed in Washington as being a key to providing universal access to health care in rural and underserved areas.

An additional factor that has stimulated growth in telemedicine is the decreasing cost of technology. Satellite and microwave links made high-speed digital communications expensive to use, but advances in telecommunications technology allow much faster data transmission on one or several analog telephone lines. Many telephone and cable television companies are investing heavily in fiber-optic cable networks, creating an essential enabling technology for telemedicine. At the same time, the sophisticated computer and video-based technology attached to high-speed networks is rapidly coming down in price.

Decreasing costs and the defeat of health-care reform at the federal level has stimulated some commercial providers of managed care to consider the technology as a way of distinguishing themselves in the marketplace. Some have argued that telemedicine is a cost-effective method of providing high-quality medicine to rural patients. Others have sought to seek telemedicine links to prestigious academic institutions as part of their quality assurance programs, or as a way to differentiate themselves in a competitive marketplace.

Basic Telemedicine Equipment and Capabilities

Most telemedicine today depends on conventional telephone lines for transmission of information. This is quite satisfactory for transmission of low-volume still images such as radiographs, pathology slides, or clinical photographs. When many such studies need to be transmitted, or when live two-way video is required, conventional telephone lines are inadequate. Some specialized devices allow several telephone lines to be combined or multiplexed to increase the throughput of analog lines. Integrated service digital network (ISDN) lines are beginning to become available in some areas. ISDN is specially designed for transmission of digital data and is about twice as fast as conventional telephone lines. Much more rapid data transmission may be carried out over a high-speed data line known as a T1 line (Table 1). A dedicated T1 line can be leased from telephone carriers today at a reasonable price. The much trumpeted *information superhighway* employs very high capacity fiberoptic trunks which can provide almost unlimited transmission capabilities. Both telephone carriers and cable television companies are beginning to lay extensive fiberoptic backbones throughout Connecticut which will allow many locations to obtain very great bandwidth at an economical price within a few years.

In order to capture a clinical photograph for transmission, a simple video camera will usually suffice and provides reasonable spatial resolution (640 x 480 pixels with 256 shades of gray or color for each pixel). The output of the camera must be digitized by a computer before transmission. Video digitizers or frame grabbers can be attached to microscopes to capture still pathologic images, or to most endoscopy devices for capture and transmission of live endoscopic images. High resolution video cameras will not faithfully capture all of the infor-

Table 1—**Telecommunications Speed for Medical Images**

Mode	*Speed*		*CT 30 Images*	*X-ray 4 Images 2K*
Analog	28,800 bits/sec.	Very Slow	72 min.	156 min.
SW 56	56 bps	Slow	36 min.	78 min.
ISDN	64,000-128,000	Moderate	16 min.	39 min.
T1	1.54 million bps	Fast	1.3 min.	2.75 min.
DS-3	44.7 million bps	Very fast	2.68 sec.	5.72 sec.
ATM	Variable	Up to 600* T1	0.19 sec.	0.29 sec.

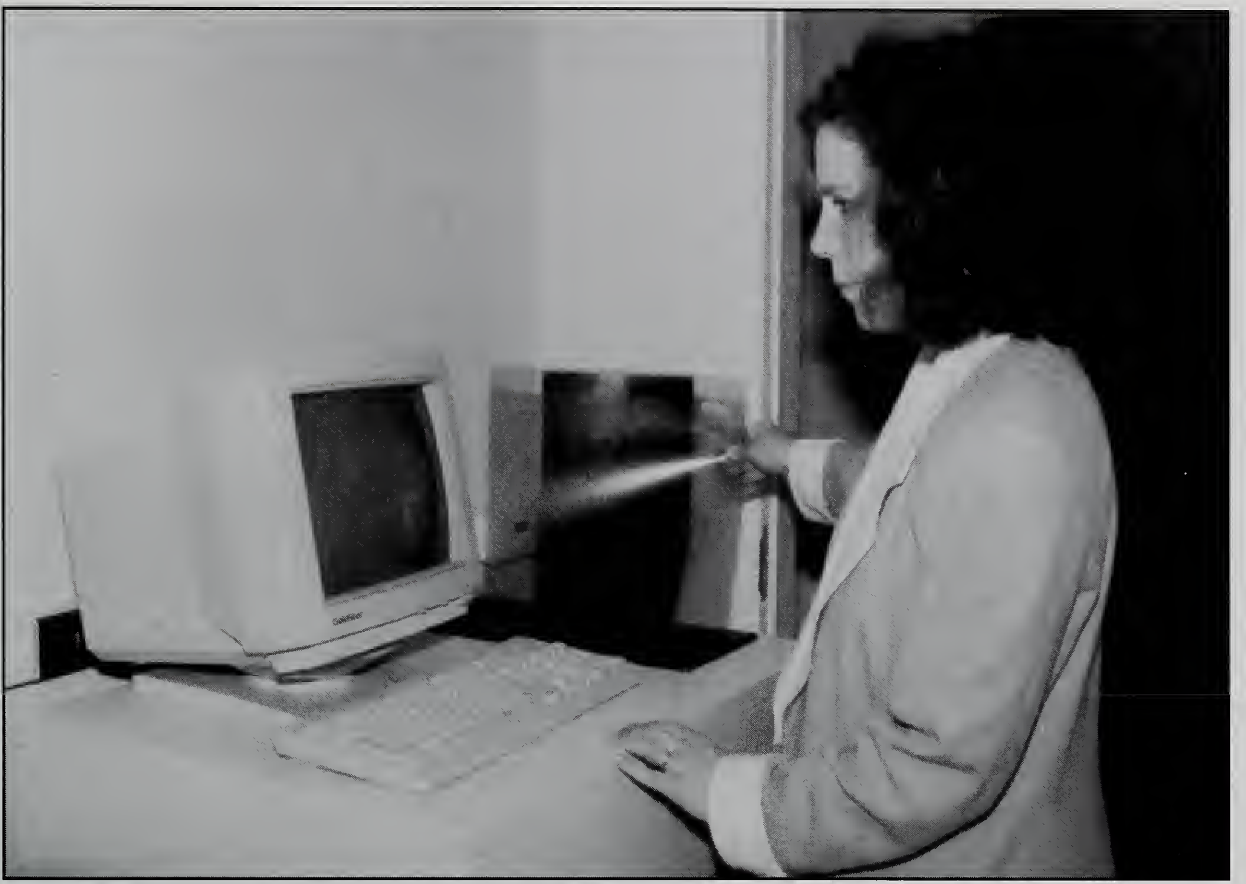
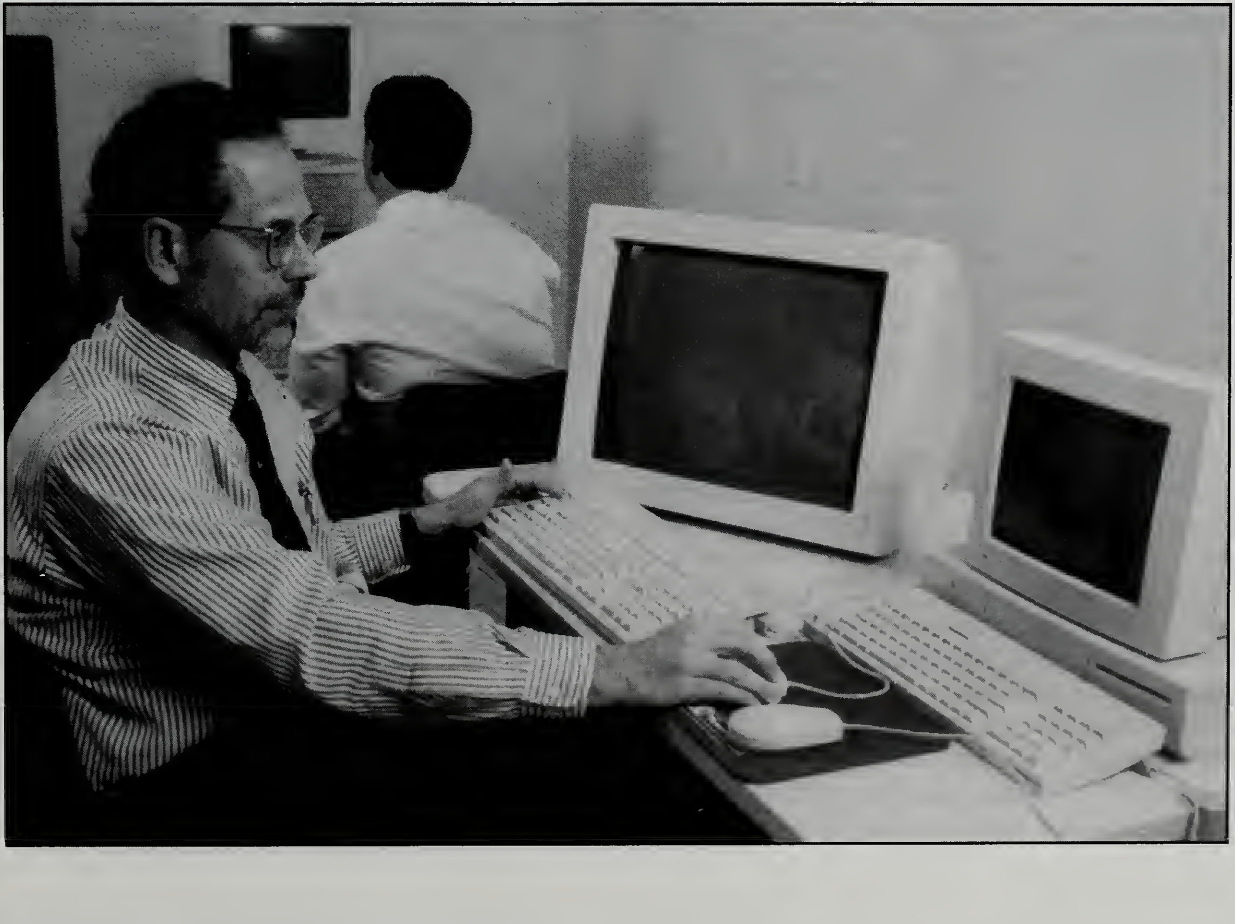


Figure 1A.—X-ray film being scanned in a high resolution laser digitizer.

Figure 1B.—Radiologist reviews digitized images on a teleradiology workstation.



mation present on x-rays films or pathologic slides, although they may in the near future. Laser x-ray film digitizers are capable of digitizing films to a resolution of 2,000 x 2,500 pixels with 12 bits of gray scale per pixel.

Two-way video requires the video signal to be digitized and then compressed in order to pack the huge amount of video data into the most available transmission media. It then has to be decompressed on the receiving end before viewing. The device that does this coding and decoding is called a *codec.* Compression of still and moving images can eliminate a great deal of noncritical information and permit faster data transmission. Compressed video may look a little "choppy" unless a wide bandwidth line such as a T1 line is used. While two-way video allows a natural and familiar clinical consultation between a patient and a physician, or between two physicians, most of the value of a clinical consultation can be achieved by exchanging a "package" of data and still images or brief video clips at much lower cost.

Medical Uses of Telemedicine

Radiology and pathology are currently the most clinically and economically viable forms of telemedicine, but almost every medical specialty is experimenting with this technology.

Teleradiology.—Only teleradiology is presently approved by HCFA for full Medicare reimbursement. Conventional x-ray films may be digitized using very high resolution laser film scanners and viewed on special workstations (Fig. 1). Other images such as CT and MRI scans are generated by computer and can easily be transmitted digitally. The American College of Radiology has established a set of technical standards which assures that transmitted images are received without loss of significant information.[6] Several studies have documented accuracy equivalent to interpretation of the original images when these standards are met.[7] Other modalities that record real-time motion such as ultrasound or cardiac catheterization can also be transmitted, but may contain so much information that very wide band communication lines are required.

A number of radiology groups in Connecticut use teleradiology to provide emergency film interpretations on nights and weekends. Teleradiology is a major component of some radiology groups' practice. One group in North Carolina uses teleradiology to cover 57 hospitals in 20 states. These radiologists predominately provide off-hour coverage but also, increasingly, access to subspecialty expertise to supplement the skills of a general radiologist. In a few areas total practice coverage is provided remotely. This is primarily used for computed tomographic (CT), magnetic resonance imaging (MRI), and nuclear medicine scans. An imaging center recently built in Melbourne, Florida, is linked to the radiology department at the University of California, Los Angeles, which provides rapid image interpretations by subspecialty radiologists.[8]

PACS (picture archiving and communication systems) is a related technology. Yale-New Haven Hospital has begun a program which will result in the elimination of all conventional x-ray film. Computed radiography substitutes special computer readable plates for conventional x-ray film. Many imaging devices such as CT and MRI scans already produce images in digital format. Using these techniques, virtually all diagnostic images can be recorded digitally and stored in large-scale image archives. These digital images are then viewed at computer workstations throughout the hospital. Presently, all chest roentgenograms done on adults in Yale intensive care units are recorded as digital images and are instantly viewable both in the radiology department and in the intensive care units. This provides rapid access to critical image information and allows physicians in the ICUs and radiologists in the radiology department to look at and discuss the same film in different locations. Physicans will ultimately view images in their offices and homes. This same technology will serve as a receiving hub for images sent in from offices and other institutions for consultation, and can transmit images from Yale to other sites. The massive image data storage capacity that Yale is assembling may also allow other institutions to archive images inexpensively and have immediate access via the rapid wideband fiberoptic networks now being built.

Telepathology.—Telepathology is most effective when one pathologist or technologist sends selected high-power fields to another for consultation. Individual high-power microscope fields can be faithfully digitized and transmitted in full color by interfacing a special video camera to a microscope. Primary interpretation of an entire microscope slide is difficult when individual still images are transmitted since a single slide contains over 1,000 high power fields. Special robotic microscopes allow pathologists to move the slide at a distant location and thereby freely inspect an entire specimen. Remote pathologic diagnosis has been shown to be highly accurate,[9] and in selected localities is being used for remote consultative practice. In Connecticut, the pathology department at Yale-New Haven Hospital, and the West Haven Veterans Administration Hospital have enjoyed an operational telepathology link for several years, and plans are underway to enlarge this to a state-wide network. At the same time, Yale pathology is working closely with the Roche Medical Imaging Group to develop a full-featured pathologist workstation that will enable very high-quality pathology image archiving, remote consultation, and remote reporting, with image data smoothly integrated with

Figure 2.—Teleconference between radiologists at Yale School of Medicine, University of Virginia School of Medicine (projected on screen), Duke University Medical Center, and the University of California, San Francisco, 16 February 1995.

the patient's pathology, laboratory, and selected medical record data. The Department of Pathology at Yale is instituting a digital pathology system that will allow storage and transmission of selected histology fields. The Yale Telemedicine Center has telepathology equipment which can send, receive, and store histologic images (Fig. 2). A dedicated connection to Saudi Arabia allows physicians in Riyadh to send pathology slides to Yale for consultation in less than five minutes.

Medical Consultations.—Live two-way video makes it possible for physicians to talk with patients and perform many aspects of physical examination across long distances. Special video adapters allow common medical instruments to be used remotely; for example, the tympanic membrane can be viewed via an adapted otoscope, the retina via a video ophthalmoscope, and a wide range of endoscopic procedures can be monitored remotely. There are even tactile feedback devices being developed which make it possible for a distant physician to "feel" a patient. While some patients may view this technology as cold and impersonal, one trial done in Georgia more often found that many patients were eager to be "on TV" and felt that they were receiving special "high tech" treatment.[10] These kinds of consultations have been particularly beneficial in rural areas, for prison medicine, and on Indian reservations.[5]

Teledermatology.—Many skin lesions can readily be diagnosed remotely through the transmission of medium resolution color still images captured using a simple handheld camcorder interfaced to a computer and modem, or specially equipped telephone. A wide field of view can provide adequate information about geographic distribution, shape, and color when evaluating skin rashes.[11] Even potentially malignant pigmented lesions may be sufficiently well defined to allow a remote dermatologist to determine whether a biopsy is required. Epiluminescence skin scopes allow detailed inspection of skin lesions at the macrocellular level. However, palpation, an important aspect of diagnosis, can only be accomplished through videoconferencing with the referring physician.

Telecardiology.—Because cardiology makes extensive use of imaging, it is also well suited to transmission of patient data to a remote cardiologist for consultation. Digital stethoscopes can transmit high-fidelity heart sounds, and EKG and Holter monitoring data are readily transmitted. Real-time ultrasound images require more bandwidth than provided by conventional telephone lines, but are easily carried over T1 lines.[12] Coronary angiograms contain in excess of 1,200 individual frames, but selected frames showing vascular anatomy and specific stenotic areas can easily be transmitted for consultation with an interventional cardiologist.

Telementoring.—Telementoring allows physicians in one location to guide physicians in another location, usually during the performance of a procedure. Using either frequent still-image transmission, transmission of real-time radiologic images, or live video from the operating room, experts in a distant location can guide or mentor physicians in another location as they perform procedures that require special knowledge or experience. Several Yale based telementoring projects are described below.

International Telemedicine.—Telemedicine technology makes it possible to provide access to highly subspecialized expertise anywhere in the world. Physicians at Yale are regularly consulted by physicians in Saudi Arabia through a telemedicine link provided by the government of Saudi Arabia. The Saudi-U.S. Universities Project links the King Faisal Hospital in Riyadh, to the Telemedicine Center at Yale, as well as to similar facilities at the Texas Children's Hospital in Houston, Duke, the University of Virginia, and George Washington University Medical Center. Live video teleconferences regularly link physicians at any or all of these centers to provide unique and invaluable access to some of the best subspecialty expertise in the world (Fig. 2). In addition to live, two-way video, detailed radiographic and pathologic images can be viewed by all and discussed. Yale, sponsored by NASA, is also establishing a link to the University of Moscow for medical education purposes.[13] Yale physicians are helping NASA planners prepare to provide telemedicine expertise to the space station. Several entrepreneurial groups are linking underserved areas worldwide to U.S. medical expertise.[14]

Medical Education.—Distance learning is a vitally important component of telemedicine. Health-care workers in many areas of the United States and abroad have limited access to current medical information and continuing education. Video communication can link a teaching hospital to one or several distant sites where joint conferences and lectures can be conducted. The audience at the distant locations can participate fully in the exercise since they can be seen by conference presenters and can ask questions, present patients or clinical problems, etc. Recently a radiology grand rounds presentation at Yale was linked to radiologists in North Carolina, Virginia, and California, as well as to physicians in the Middle East (Fig. 2).[15] All were able to converse freely with each other and radiologic images were sent from around the globe for discussion by Yale radiologists.

The Internet

The Internet is a "network of networks" which links tens of thousands of universities, businesses, and individuals around the world. Once attached to the Internet, messages, still images, and even video clips can be sent to many locations around the world without charge. A great deal of medical content is available on the Internet including medical bibliographic retrieval, discussions of disease entities and cases, and clinical photographs and images. Some are using the Internet as a primary means of clinical communication. One university-based imaging center in New Jersey makes all radiology reports and representative images available to referring physicians on the Internet.[16] The bandwidth of the Internet is limited depending on the means of connection and full-motion real-time video communication is currently not possible. Information about the Yale Telemedicine Center is available on the Internet at http://info.med.yale.edu/telmed.

The Yale Telemedicine Center

The Yale Telemedicine Center provides access to Yale physicians from all clinical specialties via advanced telemedicine technology (Fig. 3). Interactive video communication is available that can be used to "examine" a patient in a distant location, or to allow physicians or health-care workers in another location to discuss difficult cases with Yale subspecialists. High-resolution teleradiology equipment permits exchange of any kind of radiologic image data. Telepathology equipment can transmit or receive detailed color still images from histologic specimens. Equipment in this facility is linked to Washington, D.C., via wideband T1 line where a full-time satellite link is available to Saudi Arabia. Special communications lines or conventional telephone lines can provide access to this center from almost anywhere.

The Yale Telemedicine Center will make access to subspecialty expertise available to anyone requiring such services in Connecticut, as well as to locations in other states and throughout the world .

A variety of teleradiology services are coordinated through the Yale Telemedicine Center. The Department of Diagnostic Imaging at Yale has established links between Temple Medical Center and Yale-New Haven Hospital for exchange of nuclear medicine images. A trial has been conducted linking Lawrence and Memorial Hospital and the Yale Department of Diagnostic Radiology for access to subspecialty expertise in pediatric radiology. Dedicated lines (T1) link the West Haven Veterans Administration Medical Center and Yale-New Haven Hospital. Images from PET scans are sent to Yale where they are processed on computers that superimpose or coregister PET scan data with MRI, CT, or nuclear medicine data. A

Figure 3.—Video conference between physicians at the Yale Telemedicine Center and a clinical coordination center in Washington, D.C. Teleradiology and telepathology workstations are located out of camera range.

major expansion of this communication network is planned as part of a joint Yale-Southern New England Telephone-Veterans Administration Medical Center (Yale-SNET-VA) trial which will allow many radiologic images to be exchanged between the two institutions as well telepathology, teledermatology, medical consultations, and other capabilities. The many teaching conferences and activities provided by Yale will also be shared on this network as well as made available later to other institutions.

The Yale Telemedicine Center has the capability of sending and receiving radiologic images from Saudi Arabia (Fig. 1). A teleradiology and two-way video link connected the medical facility at the Yale Field House and the Yale-New Haven Hospital emergency department during the Special Olympic World Games.

The Department of Pathology at Yale is instituting a digital pathology system which will allow storage and transmission of selected histology fields. The Yale Telemedicine Center has telepathology equipment which can send, receive, and store histologic images (Fig. 4).

At Yale, a teledermatology trial is being conducted using a special video telephone which uses standard telephone lines, a video camera, and monitor. Yale dermatologists "telementor" dermatologic surgery at the West Haven Veterans Administration Medical Center. Frequent still-color images are sent by the operating resident at the Veterans Administration Medical Center of the skin lesion to be removed. The consulting dermatologist points to significant features on the image with a mouse and discusses the progress of the surgery orally.

Surgeons at Yale have been particularly interested in using telementoring to teach advanced laparoscopic surgery. A curriculum has been developed to teach surgeons advanced techniques and skill development through courses and laboratory work at Yale's Endoscopic Surgery Center. Once surgeons have mastered these techniques in animals, they return to their own hospitals and are supervised as they perform these new procedures on their own patients through a live two-way video and audio link that connects them to the new surgical telementoring command center at Yale. Surgeons in the command center see everything that the local surgeons are seeing because the video output of the laparoscopes is transmitted. Yale surgeons use a graphic annotator to mark the laparoscopic image on the monitor which supplements their verbal directions to the local surgeons. Trials in Detroit and Hawaii have demonstrated the feasibility of this technique. Plans are currently underway to link 11 centers

Figure 4.—Pathologists view images received from Saudi Arabia on pathology workstation in the Yale Telemedicine Center.

throughout the United States to the Yale Endoscopic Surgery Center. Telementoring is also suitable to guide other medical procedures such as dermatologic surgery (see above), and interventional radiologic procedures.

Legal and Regulatory Issues

Telemedicine raises a host of legal issues including liability, confidentiality, privacy, licensure, competition, and utilization. When telemedicine is practiced between two locations within the same state, licensure is not an issue; however, when the patient is located in a different state then it may be necessary for the physician to be licensed in the state where the patient is located as well as in the state where his or her practice is based. Kansas has already passed a law mandating this when telemedicine is practiced within the State of Kansas. Other states may pass similar regulations.

The issue of credentialing arises when a physician is linked to a distant hospital. In several telemedicine trials, credentialing has not been required of the distant physician as long as the physician requesting a consultation and who will act on the recommendations of the distant consultant is properly credentialed.

The medico-legal liability implications of telemedicine have not yet been tested, but they undoubtedly will be when the practice of telemedicine becomes more widespread. Medical liability insurance varies with individual carriers. It is likely that physicians will have to document that they have employed adequate technical standards to assure that their consultation is based on accurate data. The American College of Radiology has issued a set of standards to assure faithful transmission of images of sufficient quality to allow radiologists to render a primary interpretation.[6] It will be important for other professional and standards organizations to recommend similar standards for other aspects of telemedicine.

Reimbursement

So far, only teleradiology has been approved by HCFA for full Medicare reimbursement. This is because it is clear that the nature of the radiologist's consultation is not affected by whether he or she reads the original image, or a faithful reproduction of that image at a remote location. Reimbursement for other services are currently negotiated as a contract between participating institutions.

Potential Telemedicine Applications in Connecticut

One of the most effective uses of telemedicine is to provide health care to areas that have little or no access to health care. This has been well shown in states such as Georgia and Nebraska with large rural populations. While Connecticut is not a rural state, there are medically underserved regions, most notably urban inner-city areas. People in the inner city may not live a great distance from a conventional health-care facility, but socioeconomic realities may make ready access difficult.

Norwalk Hospital, in collaboration with SNET, recently conducted a pilot program linking physicians at Norwalk Hospital to a voluntary clinic in East Norwalk run by AmeriCares. The clinic provides medical services for the uninsured, consulting with Norwalk Hospital physicians as needed.

For over 20 years radiologists have been using portable computer-based teleradiology workstations to provide emergency coverage to hospitals at night and on weekends. Such inexpensive equipment makes it possible to provide preliminary interpretations of images that will be reread when the radiologist returns to the hospital in the morning. New technology makes it possible for the radiologist to issue final-image interpretation of high-resolution images. As two-way video capabilities becomes integrated into inexpensive desktop computers, other subspecialists may also find it convenient to cover their practices remotely during off hours.

Rapid changes in health-care economics and delivery will make telemedicine an important part of regional health-care delivery systems as hospitals, clinics, and physicians' offices become increasingly integrated. High-speed communication of medical and administrative information will be essential for these entities to act in a coordinated manner. Initially, this technology can help assure a steady flow of patients to medium and large sized hospitals, but in the coming capitated reimbursement environment, it will be increasingly important to treat patients in their local communities and hospitals, and reserve more expensive tertiary and quarternary facilities only for those patients that require them. A newly formed managed-care company at Yale will use teleradiology and telepathology to provide access to Yale subspecialists for covered patients throughout the state.

The cable and telephone industries are developing a sophisticated telecommunications infrastructure that will allow these distributed health-care delivery systems and their managed-care partners to send expertise electronically to patients in their communities, and eventually into individual homes. This technology will also make it easier to identify those patients that need complex diagnostic or therapeutic intervention and move them quickly to the appropriate level of care.

While excess hospital bed capacity and a projected oversupply of physicians are creating intense competition and restructuring of health-care in this country, world wide there are vast areas with little or no access to modern, state-of-the-art health care. Because the economics in some of these areas cannot support more than the most basic of medical needs, there are many areas which can benefit from access to U.S. medical expertise. This reflects a general projected trend in the United States economy which is to recognize a world-wide demand for American intellectual property and expertise.

This will be particularly important in states like Connecticut, with a high ratio of physicians to patients and strong representation by all subspecialties. Connecticut physicians will almost certainly be able to export their services in the future.

Telemedicine is a solution to problems that are still being defined, such as image interpretation, patient and physician education, and universal access. Future telemedicine technology will be computer based and available in private physician offices. Over the next several years, however, the cost of telemedicine technology will continue to necessitate its being centered in hospitals and clinics. Connecticut physicians should see Yale and others in their community with telemedicine capability as a resource to help them with difficult case management, night-call coverage, and subspecialist consultations. Medicine is entering an era where technology will allow Connecticut physicians to reach out to serve new groups of patients, new revenue sources, and new strategic alliances, through creative applications of the medium.

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These abstracts were selected from 44 submitted for posters and oral presentations. On this 10th anniversary it is notable that participation by community physicians has tripled and that reports of outcomes investigations have increased.

Immunohistochemical Detection of Germ Cell Tumor Markers in Poorly Differentiated Lung Carcinomas

MIRZA BAIG, M.D., STEVEN C. SIEBER, M.D., AND MAXINE MARINO, B.S.
Department of Pathology and Laboratory Medicine

Immunohistochemical stains for various cellular antigens and tumor markers are often applied to sections of biopsy or resection material from mediastinal malignancies of unknown origin. Light microscopic differential diagnosis of poorly or undifferentiated large-cell mediastinal neoplasms includes generally chemosensitve, potentially curable, extragonadal germ-cell tumors, and generally incurable metastatic nonsmall-cell carcinomas from an occult lung primary. The importance of resolving the above differential diagnosis by pathologic means is, therefore, crucial.

We performed a retrospective immunohistochemical study of 21 cases of poorly differentiated nonsmall-cell lung carcinomas retrieved from the Danbury Hospital Surgical Pathology files (1990-94), testing for aberrant expression of three different germ-cell markers [human chorionic gonadotropin (HCG), alpha-fetoprotein (AFP), and placental-like alkaline phosphatase (PLAP)]. Pathologic material consisted of pulmonary lobectomy or wedge resection specimens, and the diagnosis of primary lung cancer was confirmed by standard light microscopic techniques.

Immunohistochemistry was performed using polyclonal antibodies to the respective antigens. Positive staining of each tumor for low-molecular-weight cytokeratin (CAM 5.2), an epithelial marker, assured postfixation antigen preservation in the paraffin-embedded, formalin-fixed tissues.

Focal or diffuse immunoreactivity of tumor cells for HCG was detected in 14 of 21 cases (67%), including 9/10 (90%) of adenocarcinomas, 1/2 (50%) of adenosquamous carcinomas, 2/4 (50%) of squamous carcinomas, and 2/5 (40%) of large cell carcinomas. Immunoreactivity for PLAP was noted in 18 of 21 cases (85%) specifically, in 10/10 (100%) of adenocarcinomas, 2/2 (100%) of adenosquamous carcinomas, 3/4 (75%) of squamous carcinomas, and 3/5 (60%) of large-cell carcinomas. There was no detectable immunoreactivity for AFP in any of the cases.

In summary, aberrant expression of HCG and PLAP was detected in the majority of poorly-differentiated nonsmall-cell lung carcinomas in our series. This phenomenon has been previously reported in the literature for a variety of nongerm-cell (somatic) malignancies. Immunohistochemical expression of these two markers in large-cell neoplasms should not be used as sole evidence for a germ-cell origin.

Increased Sensitivity of Parathyroid Scintigraphy with Newer Radiopharmaceuticals (TC-MIBI): A Correlative and Statistical Study

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Imaging of the parathyroid glands has always been a challenging problem. Because of their small size and location, even high resolution modalities such as computed tomography and magnetic resonance imaging have not been sensitive enough for their precise localization. Functional dual radionuclide scintigraphy with its ability to define small areas of increased vascularity is more suited for imaging enlarged parathyroid glands.

In patients with clinical hyperparathyroidism, presurgical localization of adenomas and/or hyperplastic glands is extremely useful for management. Dual scintigraphy with Tc 99m pertechnetate and thallium 201 chloride with digital subtraction techniques has provided fairly good results in the past decade. With the development of a newer blood pool agent (Tc 99m-MIBI) which has primarily been used for myocardial perfusion imaging, there have been reports in the literature indicating its usefulness for parathyroid imaging. Iodine 123 is used to define thyroid morphology instead of Tc pertechnetate. A dual scintigraphic technique with ^{123}I and Tc-MIBI with digital subtraction was developed. Due to the favorable energy characteristics of Tc 99m over ^{201}Tl the image quality using the new method has distinctly improved.

The records of 29 patients who underwent parathyroid imaging followed by surgical exploration at Danbury Hospital during 1990-94 were reviewed. Eighteen (62%) underwent ^{201}Tl imaging and 11 (38%) were scanned using Tc-MIBI. Scans using ^{201}Tl accurately detected the presence and location of parathyroid adenomas in 12 of 18 cases (72%) as compared with 11 of 11 (100%) with Tc-MIBI. This demonstrates the greater sensitivity of the newer method. It was also found more specific for precise localization of enlarged glands. Mean operation time with Tc-MIBI was shortened by 11 minutes compared with ^{201}Tl, however the difference was not significant because of the small sample size.

The functional nature of nuclear imaging is ideal for imaging enlarged parathyroid glands. Newer techniques such as Tc-MIBI imaging have greatly enhanced the sensitivity and specificity over the previous methods and is now routinely employed in our department.

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Correlation Between Managed Care Enrollment and Physician Charges

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Managed care health insurance coverage provided in a cost efficient manner through health maintenance organizations (HMOs), point of service (POS) plans, and preferred provider organizations (PPOs) have resulted in a decline of employer health benefit costs. These plans have been successful in reducing costs to employers, because the managed care companies have negotiated capitation of health care charges for the same or more services. Many hospitals and physicians have found that they must either cooperate with the managed-care programs or lose business.

A nationwide survey, conducted by Foster Higgins, an international benefit consulting firm, found that the number of employees enrolled in managed care plans rose from 52% in 1993 to 63% in 1994. The survey results were presented both by city and by HMO enrollment. The enrollment percentages were provided by the Group Health Association of America's (GHAAs) National Directory of HMOs Database which lists the market penetration of the 54 largest metropolitan statistical areas.

We hypothesized that in cities with higher levels of managed care penetration, physician fees would be less than in cities with smaller levels of managed care. We also hypothesized that there is no connection between charges and variability of charges across locations.

Methods: Twenty-one common procedures were reviewed by using the corresponding current procedural terminology [ed.4] (CPT-4) codes and the CARESYS program which provides physician fee information by zip code. We compared fees in the 90th percentile using statistics from 13 cities across the country. We chose to limit our research to HMO penetration as these organizations have been established longer and have the highest level of enrollment compared with POS and PPO plans. In our comparison, we used the same metropolitan areas used to identify HMO penetration as we used for charge information. Without adjusting for cost-of-living and other economical influences, we charted a comparison of physician charges and HMO enrollment by CPT code.

Results were graphed using geographical areas with increasing amounts of HMO penetration and physician fees by CPT code. No significant correlation was found in analyzing the entire 13 different areas. In an effort to consider other factors such as cost of living, analysis was completed on two groupings of areas. The first was California, Massachusetts, Florida, and New York. In that instance, 76% of the physician fees showed a pattern of increased charges as HMO penetration decreased. In grouping Oregon, Rhode Island, and Nevada only 38% of the fees showed the same pattern.

We conclude that a correlation between higher percentages of HMO penetration and lower physician charges does not exist. We found that regardless of the percentage of HMO enrollment, variability in physician charges existed for more resource-intensive procedures.

Survival of Older Patients Beginning Chronic Hemodialysis

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Dialysis is increasingly used in the elderly patient. Of 89 active dialysis patients in Danbury as of 30 June 1994, 45 were over age 55 at the initiation of dialysis; of these, 14 patients were over 70 and six over 80. This mirrors a national trend.

Review of the entire Danbury Hospital dialysis experience from 30 June 1969 until 30 March 1994 revealed 251 of a total of 491 patients who were over the age of 55 at the initiation of dialysis. During the five year interval from 1969 through 1994 the percentage of dialysis starts over age 50 increased from 41% to 74%. Dialysis starts over ages 80 and 90 do not appear until 1984. The first patient to survive less than one year did not start until 1973; the first to survive less than six months started in 1975, and not until 1982 was a patient begun who survived less than 90 days. These dates reflect a less selective initiation of dialysis in older, sicker patients. Pre-existing severe vascular disease was the most important comorbidity limiting survival. Of 49 patients who survived less than one year, 32 had severe vascular disease manifested by arteriosclerotic heart disease, strokes, and amputations. Of these 32, 16 had diabetes. Five short-term survivors had myelomas, and four had other forms of malignancy.

Although life expectancy for elderly dialysis patients is less than for nondialysis elderly, prolonged survival is not uncommon. Our current patients include a 72-year-old man who began dialysis at age 55, an 89-year-old woman who started at age 82, two women ages 82 and 74 who began four years ago, and a 93-year-old who is doing well after one year.

Comorbid conditions, including cerebral function, are relevant in making decisions concerning the appropriateness of initiating chronic dialysis. However, arbitrary age cutoffs are not justified.

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Predicting Patient Risk of Future Embolic Events: A Transesophageal Echo Cardiography (TEE) Study

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Transesophageal echocardiography (TEE) has proved useful for identifying previously undetected cardiac embolic sources. To date, however, the feasibility of using TEE-acquired data to predict future embolic events, in the absence of definite thrombus, has not been examined. The purpose of this study was to devise a scoring system, using information obtained during TEE, that would help stratify patients with respect to future risk of embolic events.

TEE studies (biplane or multiplane) were performed in 173 consecutive patients. Twenty-six patients were excluded from the study because of the documented presence of thrombus (n=4), myxoma (n=1), or atrial fibrillation (n=2; four with left atrium [LA] thrombus). One hundred forty- seven patients were included and followed prospectively. A scoring system for embolic risk was devised utilizing TEE data assessing: LA and LA appendage (LAA) size; LAA flow velocity; severity of LA spontaneous contrast; severity of aortic plaque; severity of aortic spontaneous contrast; LV systolic function; and valvular abnormalities (higher score = increased embolic risk). Patients were divided into two groups, based on TEE risk score. Group I (n=125) had a score <7. Group II (n=22) had a score >7. Group II was further divided into Group IIA (n=11) (anticoagulated; INR @ 2.5) and Group IIB (n=11) (aspirin therapy only). Patient follow-up was performed at 6, 12, 18, and 24 months (follow-up 100%); mean duration of follow-up = 17.9 months (12-24 months). During the follow-up period, six embolic events occurred in the 147 patients: Group I (one patient with TIA) (1/125 or 0.8%); Group IIA (one patient with TIA) (1/11 or 9%); Group IIB (two patients with TIA, one patient with CVA, one patient with peripheral embolus) (4/11 or 36%).

Conclusions

1) Using data acquired during TEE, an embolic risk score can be generated which is useful for stratifying a patient's risk of future embolic events. Patients with a score >7 had a significantly increased risk of embolism during a follow-up period of 12-24 months.

2) Our follow-up data also suggest that patients with a TEE risk score >7 should be considered for long-term anticoagulation, even in the absence of atrial fibrillation or documented thrombus.

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Comparison of Radionuclide and Radiographic Voiding Cystography

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Vesicoureteral reflux (VUR) is a common cause of recurrent urinary tract infections in children. Long-standing VUR may produce complications including hypertension, renal scarring, and eventual renal failure. Early detection of this disorder is necessary to initiate proper treatment and avoid complications. Both nuclear voiding cystourethrogram vapordensity (VCUG) and x-ray VCUG techniques may be utilized in evaluating for VUR.

A retrospective comparison of 47 pediatric patients with recurrent urinary tract infections at Danbury Hospital who underwent both procedures between 1989 and 1994 was performed. The population consisted of 92% females and 8% males with ages ranging from two months to 10 years. Twenty-eight of 47 (60%) had abnormal nuclear VCUG studies as compared with 23/47 (49%) with abnormal x-ray VCUG studies. Bilateral reflux was detected with nuclear VCUG in 10/47 (21%) with only 6/47 (12%) x-ray VCUG detecting bilateral disease.

Results summarized above confirm that nuclear VCUG is a more sensitive modality than x-ray VCUG in the detection of VUR. Bilateral reflux was also noted on several nuclear VCUG scans when only unilateral disease was noted on the x-ray VCUG studies. Assuming 100% sensitivity for nuclear VCUG, the x-ray VCUG has a sensitivity of 82%. Advantages of nuclear VCUG include greater sensitivity and lower gonadal radiation dose (50-200x less than x-ray) allowing for serial studies to be performed on a patient with less cumulative radiation exposure. The x-ray VCUG provides more detailed anatomic definition and allows better division of degrees of reflux (x-ray grades I-V compared with Nuclear Grades 1-3).

Used in conjunction with renal/bladder ultrasound to define anatomy, nuclear VCUG appears to be a better method of screening and follow-up of VUR compared with x-ray VCUG. The greater sensitivity and lower radiation dosage are advantageous.The x-ray VCUG may still be necessary, particularly in male patients, to better define anatomic anomalies such as posterior urethral valves.

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Clinical Profile of Stillbirths in a Community Hospital Population, 1983-94

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From July 1983 through June 1994 the obstetrical data base of the Danbury Hospital Department of Obstetrics and Gynecology was searched for delivery records of stillbirths, defined as fetal death in utero after 20 completed gestational weeks. One hundred twenty-one cases met this definition for an incidence of approximately one in 215 deliveries. The records were compared to 2,451 consecutive deliveries between July 1993 and June 1994. The mean maternal age of women delivering stillborn infants was 29.8 ± five years (compared to 30 years for the Danbury population as a whole), with a mean gestational age of 30.6 weeks (*vs* 39.6 weeks). Thirty-four of 121 (28%) had had at least one spontaneous abortion and 11 (9%) had had two or more spontaneous abortions, compared with 418/2,451 (17%) and 116 (4.7%) respectively, of the total population. Twenty-three of 121 (19%) smoked any number of cigarettes, *vs* 270/2,451 (11 %). Eight of the 121 (6.0%) pregnancies delivering at least one stillborn infant were multiple gestations. The incidence of multiple gestations in the Danbury Hospital population is 1.3%. Mean birthweight of the stillbirth infants was 1,595 ± 1,194 g (*vs* 3,375 g), length 40.5 ± 10.7 cm (*vs* 52 cm), placental weight 383 ± 214 g (*vs* 510 g). A birthweight nomogram derived from this population previously published was applied to the stillbirth cases. Fifty-five of 121 (45%) were less than the 10th centile for birthweight for their gestational age at delivery, and 14/121 (11.5%) were >90th centile for weight. No difference in incidence of hypertension, substance abuse, infectious diseases, sexually transmitted diseases, or ethanol abuse was observed between cases delivering stillbirths and the total delivery population. The primary risk factors associated with intrauterine fetal demise in this low-risk population appear to be past pregnancy complications such as spontaneous abortion and/or prior premature birth, and a history of multiple gestations, rather than to maternal medical or gestational disease or to toxic exposures. While some degree of misestimation of fetal growth may be related to a death-delivery interval which yields a lower fetal weight for the age at actual delivery, birthweight <10th centile was observed in the majority of cases. Increased surveillance of patients with such histories may improve antepartum detection of fetal growth impairment, a common finding among low-risk stillborn infants.

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Radiation Therapy and Early Stage Breast Cancer: Results of Treatment at a Community Hospital

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Breast conservation is a goal in treating early stage breast cancer, TiS, T1, and T2, with conservation surgery and radiation therapy. After an average follow-up period of 51 months, 95.7% of the 326 breasts treated were free of disease. This compares favorably with other reported results. Salvage mastectomy was often successful for the rare treatment failure. The results also show that the likelihood of recurrence in our experience cannot be predicted by the stage of the primary tumor, its histology, or whether or not systemic treatment is used.

Factors Affecting the Development of Mucus Plugs in Patients with Transtracheal Oxygen

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Transtracheal oxygen (TTO) catheter placement is a new procedure. It provides direct oxygen delivery to patients with advanced lung disease. Symptomatic mucus balls have been noted in 10% to 20% of TTO patients. One fatality has been reported. There is a lack of research relating to the possible causes of this potentially fatal complication. The purpose of this study was to determine if patients who experience mucus plugging share common characteristics.

Oxygen flow rate (L/min.) and disease severity (% predicted of FEV_1) were chosen as variables. This retrospective study examined the charts of 29 TTO patients. An unpaired two-tailed student's t test was employed to determine difference in oxygen flow rate and severity of disease between those patients who did develop mucus plugs (Group 1) and those patients who did not develop mucus plugs (Group 2).

Group 1 comprised 14 with chronic obstructive pulmonary disease (COPD) patients, one patient with cystic fibrosis (CF) and one patient with idiopathic pulmonary fibrosis (IPF). The mean age was 62.1, the mean oxygen flow rate was 1.6 L/min., and the mean FEV^1 was 24% of predicted. Group 2 consisted of seven patients with COPD and six patients with IPF. The mean age was 65.5, the mean oxygen flow rate was 2 L/min., and the mean FEV_1 was 38% of predicted.

There was no significant difference in oxygen requirements between those patients who developed mucus plugs and those patients who did not develop mucus plugs (t = .4. P = .07). However, there was a significant difference in disease severity between those patients who developed mucus plugs and those who did not develop mucus plugs (t = -2.4. P = .03). These findings indicate that oxygen flow rates do not appear to affect the development of mucus plugging in patients with TTO. However, the more severe the FEV_1, the higher the risk for mucus plugging. Furthermore, given the preponderance of COPD in Group 1, the results may suggest that not only a more severe FEV_1, but also impaired mucociliary clearance in this diagnosis may contribute to mucus plugging in this group of patients. These may have implications for nursing practice.

Nurses can direct better patient selection criteria and can provide appropriate patient education by defining factors that contribute to the development of mucus plugging and identifying patients at risk.

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Childhood Immunization Programs in Greater Danbury: Analysis of Progress Made and Lessons Learned

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Childhood immunization practices reduce the incidence of vaccine-preventable diseases resulting in lowered morbidity, mortality, and medical costs. At present, the national immunization completion rate for two year olds is less than 70%. The Healthy People 2000 and the 1993 National Childhood Immunization Initiative goal is to advance the completion rate to more than 90% by the year 1996.

We collected retrospective data on immunizations from five public pediatric clinics and six primary care private offices in the community. Records of subjects reviewed only included those who were between the ages of 24 and 35 months on the date surveyed. Two hundred nine (24.7%) of the eligible records from these clinics and 316 (51.1%) of the eligible records from the offices were randomly selected and reviewed. Of the total 525 records reviewed, 449 (85.5%) had completed the primary series of immunization by the age of two years. Comparing the clinics with the private offices, the immunization completion rates were 86% and 85.4% respectively. It has been reported that delay in the first set of immunizations is the best indicator for subsequent incompletion of immunization by the age two years. Our data from the clinics confirmed this finding. Children, who were on time (<3 months) or were delayed (>3 months) in completing the first set of immunization, were found to have immunization incompletion rates at age two of 13.6% and 37.4% respectively. Differences between the two groups by paired *t* test showing $t = 2.8$ and $P = .05$. However, these findings and association could not be confirmed with data from the private offices. Analysis of data from the six offices showed findings of $t = 1.95$ and $P = .08$. The difference in percentage between all children receiving the first dose of DTP by 12 months of age and completing the series of DTP immunization by 24 months of age is defined as the dropout rate. The mean dropout rate was 13% (1 SD = 9.4) for the clinics and 11.3% (1 SD = 5.9) for the offices with no significant differences between them. It is generally acknowledged that immunization completion rate can be improved if every clinic-patient or office-patient encounter is utilized as an immunization opportunity. Expressed as a percentage of the total number of visits to clinics or offices, missed opportunities are 15.6% (1 SD = 4.2) for clinics and 16.5% (1 SD = 6.5) for offices. Children who received their first dose of immunization after 12 months of age are defined as late starters and are at great risk of not completing the entire series of immunization by age two. Two out of 209 children attending the clinics and two out of 316 children attending the offices were late starters.

The immunization completion rate for children in this community is encouragingly good. Further improvement is achievable if our clinics and offices will focus on children at risk of not completing the immunization series, reduce dropout rates with a tracking system, eliminate missed opportunities, implement an accelerated immunization program for late starters, and educate parents in the importance of timely immunization.

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Fluoride Supplementation: An Evaluation of Its Current Practice

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Fluoridation of drinking water is a standard preventive practice to reduce the prevalence of dental caries. Recent behavioral changes in a reduction of tap water consumption may decrease the efficacy of fluoridating drinking water. Conversely, widespread addition of fluoride to toothpastes and mouth-washes may increase the risk of fluorosis. Recognizing the complexity of so many contributing factors to fluoride intake, we evaluated the current practice of fluoride supplementation by studying the fluoride contents of urine and drinking water of children.

With informed consent obtained, 52 children between the ages of three and five years were recruited for this study. Parents were asked to keep a detailed diary of the fluid intake of the child for a 24-hour period immediately prior to the collection of a urine sample. A sample of the child's drinking water was also obtained. Fluoride levels in these samples were determined with a fluoride-ion selective electrode.

For all children, the mean total fluid intake was 43.9 oz (1 SD = 15.8 oz) in 24 hours, with only 9.9 oz (1 SD = 9.7 oz) or 22.6% from tap water. Eighteen (35%) children resided in households with fluoridated water which showed a mean fluoride concentration of 1.06 (1 SD = .20) mg/L. Thirty-four (65%) children resided in households with drinking water coming from wells, the fluoride contents of which showed a wide range of variations from less than 0.1 mg/L in 27 wells to a mean of .43 mg/L (1 SD = .32) in the remaining seven wells. Of the 18 children in households with a fluoridated water supply, five (28%) were reported not to drink any tap water and not to receive any fluoride supplementation. Comparing children (n=18) receiving fluoride either in drinking water or in supplementation with children (n=34) drinking well water and receiving no fluoride supplementation, the urinary excretion of fluoride was 1.33 *vs* 1.01 (mg F per g creatinine) respectively with $P = .047$ (the unpaired student's *t* test). Comparing the percentage of tap water intake to the total amount of fluid consumed, a steady decline was noted with increasing age. Similarly, a steady decline in urinary fluoride(y) excretion was noted with age(x) with $y = -.098x$ and $R2 = .158$.

Our study establishes an accurate assessment of body fluoride contents through the measurement of urinary fluoride excretion. We confirmed that tap water intake constitutes only a small volume of total daily fluid intake for a child. Contents of fluoride in well waters studied showed a wide spectrum with seven (21%) having significant amounts necessitating the need to adjust the fluoride supplementation when prescribed. With or without fluoride supplementation to oral intake, urinary fluoride excretion of all children studied shows a mean of 1.23 mg F per g creatinine (1 SD = 0.52). Our data suggest that measurement of urinary fluoride may be necessary to reflect accurately the appropriateness of fluoride intake for an individual. Further studies are needed with additional subjects in each cohort and more controlled fluoride intake.

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Transcranial Doppler and Stroke Outcome

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Transcranial doppler ultrasound (TCD) is widely recognized as clinically useful in detecting vasospasm, arteriovenous malformations, and brain death. Additional clinical applications of TCD which could directly affect patient management decisions would be useful. In this pilot study, we asked whether there is any predictive value of an abnormal TCD in the outcome after stroke.

We prospectively enrolled 62 consecutive stroke patients between November 1992 and September 1994. All patients in the study were admitted with a diagnosis of stroke. All were seen in neurologic consultation and were noted to have weakness in either carotid artery territory. Patients whose strokes were manifest by purely sensory symptoms or pure disturbances of language were excluded. All patients had a TCD within 48 hours of admission. Each patient was examined upon admission and discharge using a disability scale that assessed activities of daily living (ADLs). A "good outcome" was defined as independent in ADLs or only requiring assistance in one of the following areas: dressing, bathing, or feeding. All other outcomes were defined as a "bad outcome."

Forty-three patients met all of the criteria for the study. Twenty-four of the 43 had normal TCDs and 19 were abnormal. Of the 24 normal TCDs, 10 (41%) had bad outcomes. Of the abnormal studies, five had occlusion of the middle cerebral artery and seven had a stenosis of the middle cerebral artery. Five others had significant flow reduction (>25%) in the ipsilateral middle cerebral artery. The remaining two had absent flow in one or more vessels, other than the middle cerebral artery, within the anterior circulation. Of the 19 patients with abnormal TCDs, 84% had a bad outcome.

Using χ^2 analysis, there was a statistically significant difference in outcome based on an abnormal TCD ($P = .005$). These results suggest that TCD may be a useful tool in the early identification of stroke patients with a poor prognosis for a return to independent living.

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Chronic Obstructive Pulmonary Disease and Respiratory Failure: Is Intensive Care Unit Level Care Justifiable Throughout the Course of Mechanical Ventilation?

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Objective: Chronic obstructive pulmonary disease (COPD) complicated by respiratory failure may require prolonged mechanical ventilation (MV), tracheostomy, and a costly intensive care unit (ICU) stay. A major health issue is whether these patients, once stabilized, could receive their care in a less costly step down respiratory unit (RU). At our hospital, the current practice is to continue ICU level care throughout the course of MV. To assess whether this justifiable, we posed the following: 1. Does the physiological data base obtained towards the end of the first week of MV (day 5) show any significant instability? 2. Are there changes in this data base at the time of tracheostomy? 3. Is there an association between the initial data base (Day 5 of MV) and the duration of MV at the time of tracheostomy?

Study design: A chart review was performed (1989-94) to identify patients with COPD and respiratory failure who required a tracheostomy. Eleven charts were identified. The following was recorded: 1) Vital signs [systolic blood pressure (SBP), heart rate (HRT), respiratory rate (RR), temperature); 2) Weaning mechanics (maximum inspiratory pressure (MIP), minute ventilation (VE)] 3); Oxygenation status (oxygen saturation (Sao_2), inspired fraction of oxygen (Fio_2); 4) Duration of MV at the time of tracheostomy. Statistical analysis included a paired, two-tailed *t* test comparing the data base on day 5 of MV *vs* the day before tracheostomy and a simple regression analysis assessing the association between duration of MV at time of tracheostomy *vs* the data base recorded on day 5 of MV. Values are reported as mean+standard deviation.

Results: The duration of MV at the time of tracheostomy was 19.6 ± 10.4 days. On day 5 of MV, the $Sao_2 = 96 \pm 2\%$; $Fio_2 = 43\% \pm 13\%$; VE = 10.8 ± 2.2 L/min; RR = 16 ± 4 breaths/min; MIP = -28 ± 10 cm H_2O; temperature = 99.4 ± 1.0 degrees F; HTR = 93 ± 14 beats/min; SBP = 128 ± 28 mm Hg. These were within clinically acceptable limits and were not significantly different when compared to the same data base on the day prior to tracheostomy (paired two-tailed, *t* test, $P > .10$). Significant associations were found between duration of MV at tracheostomy *vs* the SBP ($P = 0.014$) and *vs* the HTR ($P = .038$).

Conclusion: In COPD and respiratory failure requiring prolonged MV and tracheostomy, the data base on day 5 of MV demonstrates no clinically significant hemodynamic (SBP, HTR) or pulmonary (Sao_2, Fio_2, VE, MIP, RR) instability. Likewise, these were not significantly different at the time of tracheostomy, and it appears that physicians' practice in determining the date for tracheostomy is primarily influenced by hemodynamics (SBP, HRT). This preliminary report serves to question physiologically whether ICU level care in this patient population is justified beyond day 5 of MV.

Colonic Diverticulosis and Rebleeding

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Colonic diverticulosis is a commonly encountered problem in primary care. The prevalence in the U.S. population is 33% to 50%, being rare before the age of 40 and increasing in frequency from 10% in the fifth decade to 50% in the ninth decade.

Bleeding from diverticular disease is reported to occur in 3% to 5% of these patients and is the most common cause of life-threatening lower gastrointestinal hemorrhage in the elderly. The evaluation and management of patients with severe diverticular bleeding is both difficult and costly, and may require intensive care measures as well as invasive diagnostic and therapeutic procedures.

Although the overall rebleeding rate for diverticular hemorrhage is 20% to 25%, a critical analysis of the short-term rate of rebleeding and the optimum period of hospital confinement has not been clearly determined. In our study we reviewed the medical records from Danbury Hospital to assess the rate of rebleeding and the length of hospital stay.

There were 59 bleeding episodes among 51 subjects hospitalized during a five-year time span. Of these, seven patients rebled (11.9%). One of these seven rebled twice. Thirty-six percent were transfused and 5% required surgery. Forty percent of rebleeders were on anticoagulant or NSAIDS.

The greatest risk of rebleeding is an initial diverticular hemorrhage.

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Important Advances in Clinical Medicine

Otolaryngology Head and Neck Surgery

Terence M. Davidson, M.D., Section Editor

The Council on Scientific Affairs of the California Medical Association presents the following epitomes of progress in otolaryngology. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and clinical importance. The items are presented in simple epitome, and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, researchers, and scholars to stay abreast of progress in medicine, whether in their own field of special interest or another.

The epitomes included here were selected by the Advisory Panel to the Section on Otolaryngology of the California Medical Association, and the summaries were prepared under the direction of Terence M. Davidson, M.D., and the panel.

Guidelines for Managing Chronic Otitis Media With Effusion

EAR infections in children result in substantial economic cost to society. Persistent middle ear effusions that result in conductive hearing loss are implicated in delays or permanent limitations of speech, language, and cognition. Otitis media is the most common illness diagnosed by office-based physicians for children younger than 15 years, and tympanostomy tube placement in children for recurrent acute otitis media or chronic otitis media with effusion is the most commonly performed operation in the United States requiring general anesthesia. Children younger than three years are in their greatest period of language acquisition and therefore have the most to lose developmentally from a persistent hearing loss.

Because of the economic and developmental effects of otitis media with effusion in children, the U.S. Department of Health and Human Services has sponsored the development of a clinical guideline for treating otitis media with effusion in children. This guideline applies to children between the ages of one and three years with no craniofacial, neurologic, or sensory abnormalities. The target child is asymptomatic, without signs or symptoms of acute otitis media, yet has otitis media with effusion. Pneumatic otoscopy is the main diagnostic tool, with tympanometry suggested as a method to confirm the presence of an effusion. After six weeks of an effusion, the administration of oral antibiotics is a therapeutic option. Parenteral decongestants, antihistamines, and oral steroids are not recommended at any time to treat the effusion only. Adenoidectomy or tonsillectomy is not recommended at any time for the management of effusion. Signs and symptoms unrelated to effusion—nasal congestion, allergic disease, nasopharyngitis—are not addressed by this guideline. Environmental risk factors for otitis media should be controlled at all times.

After three months of effusion, the patient's hearing is assessed using techniques appropriate for the age of the patient and the availability of audiologic services. A 20dB or worse bilateral hearing loss should be treated with antibiotics or bilateral tympanostomy tube placement. Children with an effusion for four to six months and a 20dB or worse bilateral hearing loss should receive tympanostomy tubes in both ears. An audiologic assessment is appropriate whenever concern arises regarding a child's hearing status.

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Benign Positional Vertigo

A PATIENT'S complaint of dizziness can be nearly as troubling to the physician as it is to the patient. Most forms of dizziness, however, can be diagnosed in the office based on the results obtained from a precise history and physical examination. Benign positional vertigo is one such disorder that can be readily diagnosed by primary care physicians. Furthermore, new insights into the pathogenesis and treatment of this disorder have allowed for the development of simple, office-based therapeutic maneuvers that are highly effective at eliminating positional vertigo.

The history of a patient with benign positional vertigo is that of true rotatory vertigo elicited by a rapid head movement in a nonaxial plane—such as rolling over in bed or looking up to obtain an item on a shelf. Patients will usually steady themselves, and the vertigo will resolve within seconds (usually <1 minute), although the patient may feel unsteady, nauseated, or frightened for a longer period of time. Although this classic history is diagnostic for this disorder, evidence for the diagnosis may be derived from the physical examination by the performance of the Dix-Hallpike maneuver. In this test, the patient moves from a sitting to a supine position with the head hanging over the end of a bed and rotated 45° so that one ear is facing the ground. The maneuver is repeated so that both ears are evaluated. When the affected ear is facing the ground, symptoms of vertigo will develop and an eye examination will reveal a rotatory nystagmus that begins about 10 seconds after the patient assumes the offending position. The vertigo and nystagmus will usually abate within 30 seconds, whereupon returning the patient to a sitting position with the head straight will cause a recurrence of the symptoms and a reversal of the direction of the nystagmus, although usually with less intensity.

Benign positional vertigo may affect people of all ages and of either sex. It is most frequently idiopathic in origin, but it may result from head trauma or a viral infection of the inner ear or vestibular nerve (labyrinthitis or vestibular neuronitis). It is thought to result from organic debris depositing itself within the posterior semicircular canal of the inner ear. This debris may originate from the inner ear's otolith organs and may be free-floating within the posterior canal or deposit itself on the cupula of the posterior canal.

The prognosis for patients with positional vertigo is excellent, with the symptoms ultimately resolving in more than 90% of patients. This may take months, however, during which time the patient may have difficulty performing activities of daily living. Some patients may even refrain from physical activities and restrict themselves to bed rest. This further hampers their recovery, as the resolution of symptoms seems to depend on maintaining physical activity.

Within the past decade, two simple treatment modalities have been developed that allow for the rapid resolution of benign positional vertigo and the nearly immediate return of patients to a normal level of function. These maneuvers are designed to rid the posterior canal of the offending debris. The Epley maneuver is more popular in North America because it is better tolerated by patients, and therapeutic results have been better documented. In this maneuver, a patient begins in a sitting position and is then placed supine, with the head hanging over the edge of the bed and rotated at 45°, so that the affected ear is facing the floor. This maneuver should elicit the characteristic vertigo and nystagmus. Once the symptoms resolve, the patient is maintained in a supine position while his or her head is slowly rotated in the opposite direction, so that the unaffected ear is now facing the floor. The patient's head and whole body are then rotated a further 90°, after which the patient resumes the sitting position. This series of positioning maneuvers allows the organic debris to be cleared from the posterior canal and to fall into the vestibule of the inner ear, where it causes no symptoms and will ultimately be cleared. A vibrating device placed behind the ear during the maneuver seems to increase the efficacy of treatment. The patient is advised to avoid a supine position for 48 hours after the maneuver to minimize the possibility of debris migrating back into the canal. Epley reports that one such treatment will lead to symptoms completely resolving in more than 80% of patients, and repeating the maneuver two to three times improves the efficacy to better than 90%.

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Botulinum Toxin for Hyperfunctional Facial Lines

BOTULINUM toxin A has been used for the treatment of focal dystonias since 1984. Such conditions as blepharospasm, torticollis, spasmodic dysphonia, limb dystonia, and hemifacial spasm have all been successfully relieved by administering botulinum toxin into the involved muscles. Although these movement disorders have a central neurologic origin, they respond to focal weakening of their end-organ skeletal muscles by the direct intramuscular administration of botulinum toxin. A similar weakening or neuromuscular blockade of nondystonic muscles can be achieved for cosmetic purposes. Administering botulinum toxin into specific muscles of facial expression leads to a relaxation of the muscles' pull on the overlying skin, thereby reducing hyperfunctional lines.

Botulinum toxin binds irreversibly to neuromuscular junctions and inhibits the release of acetylcholine. A flaccid paralysis or weakness is thus produced in the treated muscle. The effect is overcome as new acetylcholine terminals are generated, and muscle strength and activity return three to six months after treatment. There have been no long-term adverse effects reported with the use of botulinum toxin, but repeated exposure to large doses of toxin (>300 IU in a 30-day period) is thought to increase the risk of antibody formation and therapeutic resistance.

Hyperfunctional facial lines such as frown lines, crow's-feet, and deep nasolabial grooves are common cosmetic deformities. These furrows result from the pull of underlying mimetic muscles of the face. Such lines have been treated in the past by surgical excision, administering silicone or collagen, and chemical peels. Each of these treatments has specific disadvantages, and none addresses the underlying facial muscles that create the function lines. Administering botulinum toxin into the corrugator supercilia (glabellar lines); frontalis (forehead lines); lateral orbicularis oculi (crow's-feet); zygomaticus, levator labii superioris alaeque nasi, and orbicularis oris (nasolabial crease); and platysma (neck bands) specifically induces graded weakening of the muscles responsible for the visible skin lines. Electromyographic guidance is frequently used to assure precise administration into the respective muscles. Diffusion or displacement of the administered toxin can cause unsightly facial asymmetry, ptosis, or oral incompetence. Excessive toxin causes a loss of facial animation, but low-dose, selective administration can enhance the youthful appearance of the skin without losing expressivity. The toxin is effective for about six months, after which it may be readministered. The cost of evaluation, diagnosis, and treatment with botulinum toxin ranges from $500 to $1,500. Compared with surgical procedures and chemical peels, there is no recovery period for administering botulinum toxin, and the desired effects become apparent within three to five days of administration. Experience with repeated use of botulinum toxin in the treatment of dystonias has not shown any long-term complications. The toxin is most beneficial in patients between 30 and 50 years of age, whose facial lines are due more to muscle pull than to age- and sun-induced loss of skin and dermal elasticity.

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Facial Implants in Head and Neck Surgery

FACIAL implants were introduced in the 1950s with the oval cheek and central chin implants. The development of technology in the form of new alloplastic materials and computer-aided design has widely expanded the uses of implants in the head and neck region. Today augmentation procedures are used not only to increase skeletal dimension, but to rejuvenate and correct contours. Contemporary standards demand that facial plastic surgeons have a thorough knowledge about the selection of implants.

With the breast implant crisis, the question of the ideal implant material has come to the forefront of facial plastic surgeons. The ideal implant would be elastic, easily moldable, nonallergenic and noncarcinogenic, and resistant to infection. The ideal implant has not yet been developed.

New materials such as expanded polytetrafluoroethylene (polytef; Gore-Tex) have recently been used successfully as implants in the subcutaneous tissue and the facial, head, and neck regions. Gore-Tex has been used in 3.5 million patients over a 21-year period in vascular grafting and has stood the test of time as a reliable and safe material. Recent studies have demonstrated histologically that there is a limited reaction of the body to this material. It has been used in subcutaneous augmentation and recently as a customized implant material because it is easily moldable and can be fitted to each patient's specific needs.

The use of implants in the facial region has expanded tremendously in recent years due to increased understanding of the anatomic areas to be augmented. In the past the mentum was augmented through a central chin implant. The development of the wrapped-chin implant and the mandibular angle implant has expanded the indications for augmenting the mandibular region and has improved the ability to contour not only the anterior mentum but the prejowl sulci and the mandibular angle. Often with aging, the geniomandibular groove or prejowl sulci deepen, contributing to aging characteristics. The wrapped-chin implant allows the contour in this region to be restored and rejuvenated and augments the rhytidectomy procedure.

Malar implantation can be a difficult and challenging procedure. The expanded concept of zonal regions in the malar area has improved the understanding of selecting an appropriate malar implant. Malar shell implants, combined submalar-malar implants, tear-trough implants, and submalar implants all can be tailored to patients' needs. Critical analysis of a patient's face by the surgeon will ensure appropriate implant selection and will provide the rewards that facial contouring procedures of the midface have to offer.

Computer-aided implants have allowed the application of alloplastic materials to specific facial deformities. The development of this technology has allowed surgeons to customize the implant in areas of congenital or traumatic asymmetric deformities or in cases of customizing implants for aesthetic recontouring. Using computed tomography allows a surgeon to analyze the anatomic subtleties and to devise an implant that models and forms an accurate fit to the underlying bony deformity. Although this technology offers specific advantages, this is generally not often required in standard aesthetic facial contouring. As the technology expands, its application will certainly become more commonplace and allow the customizing of each individual implant. The fact that most facial implant procedures in the head and neck are done using a local anesthesia and on an outpatient basis has substantially reduced the cost and lessened the complications.

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Changing Aspects of Epiglottitis

ACUTE epiglottitis is classically described as a *Haemophilus influenzae* type b bacterial infection of the epiglottis in children. Recent epidemiologic studies have recorded a decline in the incidence of epiglottitis in children from 3.47 cases per 100,000 in 1980 to 0.63 cases per 100,000 in 1990 ($P < .001$). Between 1980 and 1990, the annual incidence of acute epiglottitis in adults remained nearly constant at 1.8 cases per 100,000. Consequently, the ratio of the pediatric annual incidence to the adult annual incidence of epiglottitis has dropped from 2.6 in 1980 to 0.4 in 1990, and adults are now at greater risk than children.

The decline in the incidence of acute epiglottitis in children began in 1986, a year after the Haemophilus b conjugate vaccines were introduced to combat more invasive *H influenzae* type b-caused diseases such as meningitis and septic arthritis. The American Academy of Pediatrics currently recommends giving a three-dose regimen of Haemophilus b conjugate vaccine to infants beginning at age two months.

Acute epiglottitis in children will not be eliminated. Some children will not receive the vaccine, and others will be incompletely immunized. Other organisms than *H influenzae* type b and other types of *H influenzae* may become major causes of epiglottitis.

Epiglottitis occurs most frequently in children aged two to five years. A child with acute epiglottitis typically has symptoms of fever, sore throat, odynophagia, muffled voice, dyspnea, stridor, and drooling and often sits erect to improve the airway. Blood cultures are positive for *H influenzae* in 50% to 75% of cases.

Management is begun by stabilizing the airway with an endotracheal tube or, if necessary, a tracheotomy. Treatment with antibiotics against ,(β-lactamase-producing *H influenzae* is initiated. Hospitals should have a treatment protocol established for children who may have epiglottitis.

In contrast to children, most adults do not have signs or symptoms of airway obstruction. Often their only symptoms are sore throat and odynophagia. Some adults do not seek medical attention or are diagnosed as having pharyngitis. Clinicians should suspect epiglottitis in patients who have a severe sore throat and odynophagia, especially if they have a muffled voice or drooling. A routine oropharyngeal examination does not exclude epiglottitis because 56% of patients have a normal oropharynx. Indirect laryngoscopy is the most accurate way to diagnose epiglottitis because, unlike in children, the procedure is much less likely to provoke laryngospasm and airway compromise. As with children, both the supraglottis and the epiglottis may be affected.

Although acute epiglottitis is usually caused by *H influenzae* in children, *H influenzae* is seldom the cause in adults. Blood and oropharyngeal cultures in adults have a low bacteriologic yield, but many organisms have been cultured from the adult larynx.

Medical management in adults includes antibiotic therapy for *H influenzae, Staphylococcus aureus,* group A β-hemolytic streptococcus, and *Streptococcus pneumoniae.* The use of parenteral corticosteroids remains controversial and awaits a prospective controlled study.

In adults as well as in children, maintaining an adequate airway is the main concern. Each patient must be evaluated according to a practitioner's clinical judgment. If any question of airway compromise exists, the safest course of action is to secure the airway. Respiratory distress, stridor, and sitting upright are the major signs and symptoms associated with the need for adult airway intervention. Adults who do not have signs or symptoms of upper airway obstruction can be treated medically under close observation in a hospital unit that has staff capable of securing an airway if necessary. Intubation or tracheotomy are necessary for patients who have progressive supraglottic edema or stridor.

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Phonosurgery—Outcomes of Varied Techniques

WITHIN recent years there has been pressure on the medical profession to verify the usefulness of surgical procedures. Thus, outcomes research has moved to the forefront as one of the most important areas of scientific investigation. Because laryngology and phonosurgery (surgical therapy to alter vocal quality) are relatively new subspecialties, the clinical efficacy of many of these newer procedures is of general interest.

Several studies have shown substantial sustained improvement in quantitative measures of vocal function following type I medialization thyroplasty for patients with unilateral vocal fold paralysis. (In this procedure, using local anesthesia a small Silastic implant is used to medialize the vocal fold through a window cut in the thyroid cartilage.) In addition, the efficacy of the use of botulinum toxin in the treatment of adductor spasmodic dysphonia has been successfully shown. Whereas thyroplasty improves the voice in patients with unilateral vocal fold paralysis and has been shown to be superior to administering polytetrafluoroethylene (polytef; Teflon), patients after thyroplasty still have problems speaking in loud situations and complain of voice fatigue with extended use. This is related to an inability of the thyroplasty to close a large posterior gap and prevent atrophy of the muscle of the vocal fold. In contrast, adducting the arytenoid and reinnervating the nerve can alleviate these deficiencies, but no randomized studies have been published that compare these techniques on unilateral vocal fold paralysis. Furthermore, there have been no published reports comparing the efficacy of these techniques in patients with paretic or bowed vocal folds due to senile aging or neuromuscular disorders.

Most laryngologists agree that thyroplasty improves the voice in patients with vocal fold bowing 60% of the time and that about one in four have dramatic improvement. These results are probably related to the observation that a weak voice and vocal fold bowing are a result of a number of varied causes, including neuromuscular weakness, loss of the lamina propria, and various neuromuscular disorders such as myasthenia gravis, multiple sclerosis, amyotrophic lateral sclerosis, Parkinson's disease, and the Shy-Drager syndrome.

In contrast to the efficacy of procedures for adductor spasmodic dysphonia, outcomes research with respect to the treatment of nonadductor forms of dystonic dysphonias has rarely been reported. This is primarily because of the general impression by laryngologists that the abductor and mixed varieties of dysphonias have not shown good responses to current therapies. With abductor or mixed dysphonia, the vocal folds open and close normally during inspiration and phonation; in paretic dysphonia, the vocal fold is immobile.

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Endoscopic Forehead Lift

THE forehead is the zone of expression. As we mature, the forehead falls, producing a tired or angry look that results from the triad of fallen brows, wrinkles on the forehead and between the eyes, and overhanging infrabrow skin hooding the eyes.

The customary remedy for a fallen forehead has been a coronal forehead lift, with an incision extending from ear to ear across the top of the head. This procedure has the disadvantage of producing paresthesias—resulting from interrupting the course of the supraorbital nerve—causing hair loss in the large incision line and altering the shape of the hairline.

Endoscopic approaches to lift the forehead were developed in 1989. The procedure has been successful whether the surgeon worked in the subgaleal, subperiosteal, or subcutaneous planes.

The success of the ability to elevate a fallen brow, eliminate forehead wrinkles, and relieve infrabrow skin overhang has been equivalent to that of the standard coronal forehead lifts with incisions in front of the hairline, and the stability of the aesthetic corrections appears comparable over a six-year follow-up. The incidence of complications is diminished when compared with that of the standard procedure: the hair-bearing skin is not resected, the incidence of postoperative paresthesias is diminished, the hairline is not altered, and scarring is reduced. Most surgeons have not increased their charges for forehead lifts, despite the expense of added endoscopic instrumentation.

This procedure relies on the principles of releasing the muscles that held the brow downward and advancing the brow and forehead backward. The posterior retraction of the forehead and brow is fixated to periosteum, and excess skin is removed through a triangular removal of skin through the small incision. Subsequently, a technique of backward fixation has been developed using a screw in the skull. This method of fixation has allowed even these small incisions of 4 to 5 cm to be reduced to l cm.

At present, an entire forehead lift can be done through three to five l-cm incisions. The resolution of frown lines, the elevation of the brow, and the removal of skin hooding over the eyes has proved, over our six-year experience with this technique in 450 patients, to be stable and long lasting.

Whereas women seeking cosmetic rejuvenative operations of the forehead and brow have benefited from these smaller incisions, men with partial or complete baldness are able to raise their brow position without a feminization of their features. Men had often been excluded from forehead operations because of the scarring across a bald head and a posterior advancement of the forehead.

The methods of endoscopic surgery learned from these forehead cosmetic operations have been extended and applied to the reconstructive field. Facial fracture reduction is one of the ways that endoscopic facial plastic surgery has advanced.

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This American Life: An Immigrant's View

THIRUCHANDURAI V. RAJAN, M.D.

SOON after I arrived in the U.S., I was dating a young lady who was an undergraduate at Barnard College and lived in Teanck, New Jersey. I recall driving to her house for the first time, some time in August 1970. Barbara had been born and raised in Teanck and, as we approached her house, she pointed out the sites of her life and childhood. I distinctly recall that one of the houses she pointed out to me belonged to a friend whose father, she said, operated the gas station at which we had, a few moments earlier, filled my car. While I said little, I recollect being a little surprised that someone who operated a gas station should own a house. In my country, one owned a house only if there was money in the family—often generations and generations of money. Many years later I was to learn that Teanck was a sturdy, lower middle class town, most of whose residents probably had more in common with her friend's father than the mostly professional and landed wealthy that were home-owners in India.

Twenty-five years later, I remember the incident with bemused amusement. I was looking at this country through the eyes of a not-atypical newcomer from the old world — settled, class ridden, and unchanging. When the light-colored Aryan invaders from the Russian Caucases arrived in India, they faced a darker, smaller people and conveniently divided the universe of humans into four castes—Brahmin, Kshatria Vaishya, and Shudra. While the first three classes were ostensibly based on what today would be called "job-description," the real distinction was the first three classes from the last one—for the conquering fair-skinned invader from the darker pre-Aryan people. For this reason, the ancient Sanskrit texts refer to the caste system as "varno-dharma"—the law based on color. While horizontal movement among the first three castes was, at least in theory, possible, once a Shudra, you were always a Shudra. When I arrived in this country 26 years ago, the few Americans who were vaguely aware of the existence of the caste system would ask me which caste I belonged to. When I replied that I was a Brahmin, they would exclaim that I must be rich. It was always a little difficult to explain that Brahmins were indeed the highest caste—but it was not based on wealth, but learning. Just as in the United States, a culture that is determinedly materialistic, the dividing denominator is wealth; in the spiritual life-obsessed Indian culture, religious learning was the criterion that determined one's position in society. The Brahmins were the keepers of the faith—the caste that learnt by heart the oral traditions of Hindu theology and was the conduit between the mysterious Hindu gods and common man. In Indian culture it is widely held that learning is the only true wealth—money is ephemeral but knowledge always stays with you.

In my mind, if you were born pumping gas at birth, that was what you did for the rest of your life. Coming from the society in which one's position is determined ineluctably by birth, the idea of vertical movement struck me as an audacious experiment. Twenty-five years later, I continue to be impressed by the daring of the American experiment and concerned that, even in my limited experience of this country, erosions to the limits of vertical movement seem to be increasing incrementally. I wonder whether in a nation where a poor country boy born in a log cabin in a rural backwoods could become president, a child born in the urban backwoods of Hartford or Bridgeport could ever

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dream of living to be 35, never mind becoming president of the United States. And nothing seems to jeopardize the remarkable premise of equality on which American society is based more than the coming information revolution—if it is not already here.

How often does one hear middle-aged parents talk with a mixture of awe and resignation about their children's facility with and feel for computers? How many of us have the proverbial VCR blinking 12:00 or have never learnt to programme these pesky instruments and need the children to help them with the task? While these complaints may seem trivial, almost farcical—like those articulated by Andy Rooney on "60 Minutes"—they underlie a serious problem that may worsen the problems of the underclass in this society for the foreseeable future. There seems to be a finite window in one's ontology at which computer learning seems both facile and feasible. I worry that there is a growing gap between the suburban families and the urban poor not only in the traditional learning skills taught in their respective schools, but perhaps, what is more important, in the preparation for the technologically-driven future.

A couple that we know are fond of saying that they have four advanced degrees between them—they are both M.D., Ph.D.s. They own five PCs and the children grow with a facility with computers that is enviable. In many ways they represent the forefront, if one may call it that, of yuppie-dom, but it is a rare suburban home that we visit these days that does not own at least one PC. One of our friends teaches in the Hartford school district and I asked her recently whether she could guess how many of her kids came from a computer-owning household. She guessed perhaps 10%—but cautioned that her class was probably better than other classes in her school. Another friend, also a teacher in the Hartford school district, confirmed that her assessment may be accurate—he felt that no more than one of the kids in his class came from a home with a personal computer. These children are growing up without gaining early proficiency with the one tool that threatens to be at the heart of tomorrow's earning potential. Studies done about 20 years ago suggested that of all scholastic performance skills the only one that correlated with financial status later in life was ability in math; for this generation of kids, computer literacy will probably be the analogue of math skills of the previous generation. The real problem may lie in the fact that while some skills may be learnt later, it is my experience, after watching and talking to people of my generation—otherwise educated, skilled individuals—that with computers, like chicken-pox, it is best to be exposed early. While it is still technically possible to move vertically in American culture, I fear that once you are born in the depths of the urban underclass, you are doomed to live there forever. The most invigorating facet of life in this country is the apparently boundless opportunity provided to everyone fortunate enough to live here. Are we facing a future in which people are as bound by their birth—not by the rigid criteria of "caste," but the insidious but no less binding situation of geography and schooling and social circumstance?

Doctor Moves on After Thousands of Deliveries

MARJORIE J. PASSERI

DANA Jock loves his work. The former Trumbull physician delivered more than 3,500 babies in the past 18 years as part of a job he calls "fun."

Jock had what many doctors might consider an ideal practice. The 48-year-old physician established himself as the senior partner in one of the busiest medical practices in Bridgeport and chaired the quality assurance panel in the Department of Gynecology and Obstetrics at St. Vincent's Medical Center.

Patients expressed a willingness to wait weeks to get an appointment with this well-loved obstetrician and gynecologist.

But despite all this, Jock found it harder to have fun practicing medicine here, so he decided to pack it in. He delivered his last baby in June at St. Vincent's.

He and his wife Jan, who was a teacher at Long Hill Nursery School, sold their house and moved to the rural community of Cooperstown, N.Y., with their two younger sons, Joseph 16, and William 9. (Grown sons Timothy 23 and Daniel 21 live in Los Angeles and New York City respectively.)

"I feel like I have about another 10 to 15 years to give to medicine, and I don't want to waste any more time fighting with insurance companies," says Jock.

He argues that the current constraints medical insurance companies place on physicians and patients make delivering good health care almost impossible.

"Doctors, being fairly independent people, are upset when a nurse representing an insurance company out in Southern California says that they can't do a certain surgery," Jock says.

"She may be following a written set of guidelines, but she doesn't consider the human factor. Fifty percent of medicine is an art, not a science. You have a feel for what the patient needs.

"The insurance companies don't care about saving lives, they care about saving money," says Jock. "Sometimes I go ahead and operate on a patient even if I know the insurance company won't pay. Screw it. The patient needs what they need."

"The patients are frustrated and angry. The doctors are frustrated and angry. Meanwhile, the insurance companies are stealing from both the patients and the doctors," says Jock. "The insurance companies invent rules and then change them every few months, purely and simply as a way to steal."

Jock is writing a book entitled, *Caduceus Hisses,* in which he outlines the difficulties practicing medicine today.

He has taken a job with Bassett Health Care in Cooperstown, where he will no longer have to deal with insurance companies. The medical center, which was cited as a prototype for health-care delivery 15 years ago, bypasses the insurance industry in the delivery of medical care.

Jock says this type of health-care delivery is the wave of the future.

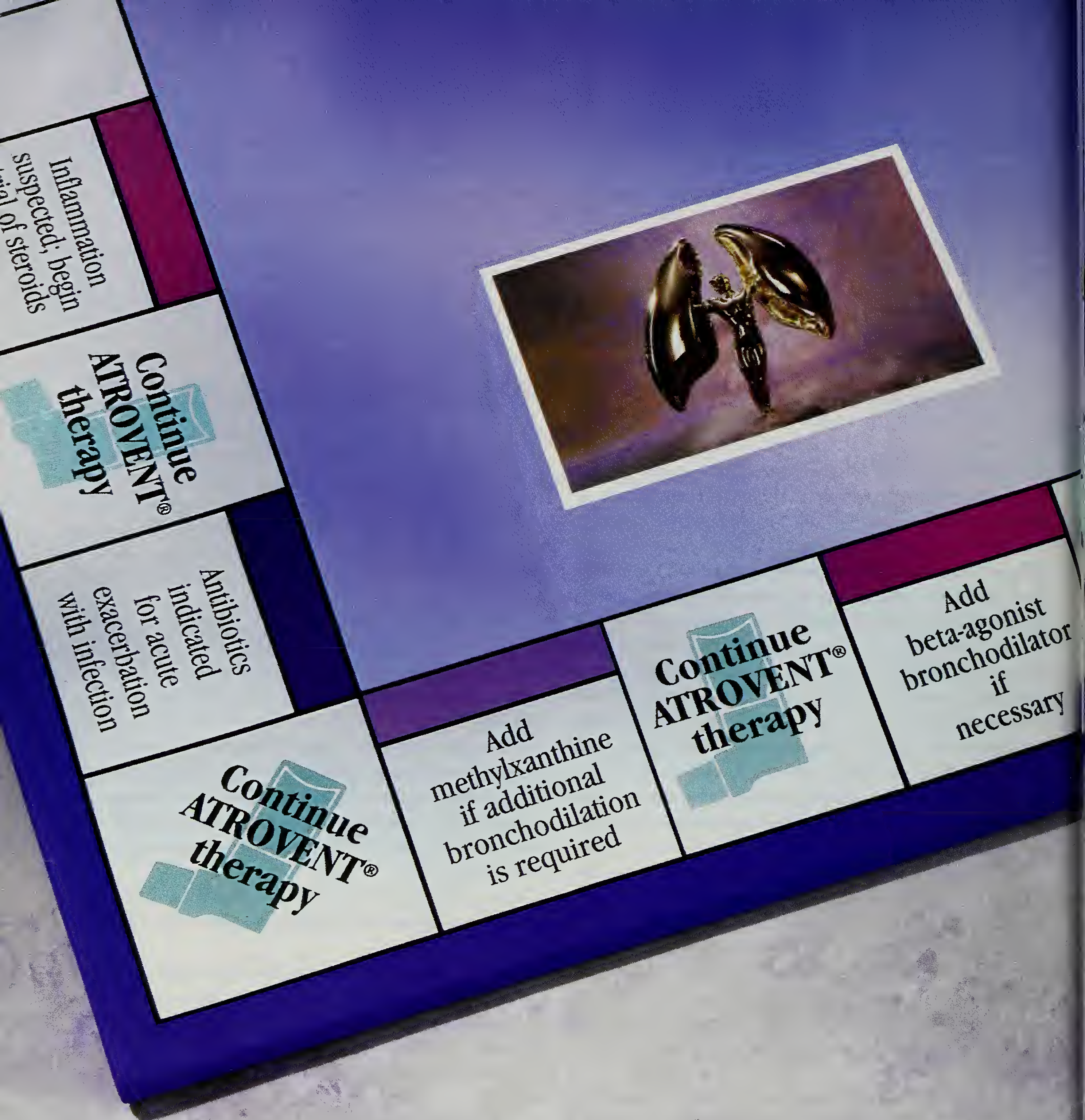
"It's an ideal model," he explains, "because everyone gets exactly the same care, whether they are dirt poor or a multimillionaire."

He says he has written a letter to Hillary Rodham Clinton asking her to take a look at Bassett as a model when determining a national health care system.

Jock hopes the system in Cooperstown will allow him to get back to practicing the kind of medicine that he loves.

"It's a pretty fun thing delivering a baby—it's an awesome thing," says Jock. "I've been lucky to have been able to share the enthusiasm I feel with my patients and colleagues."

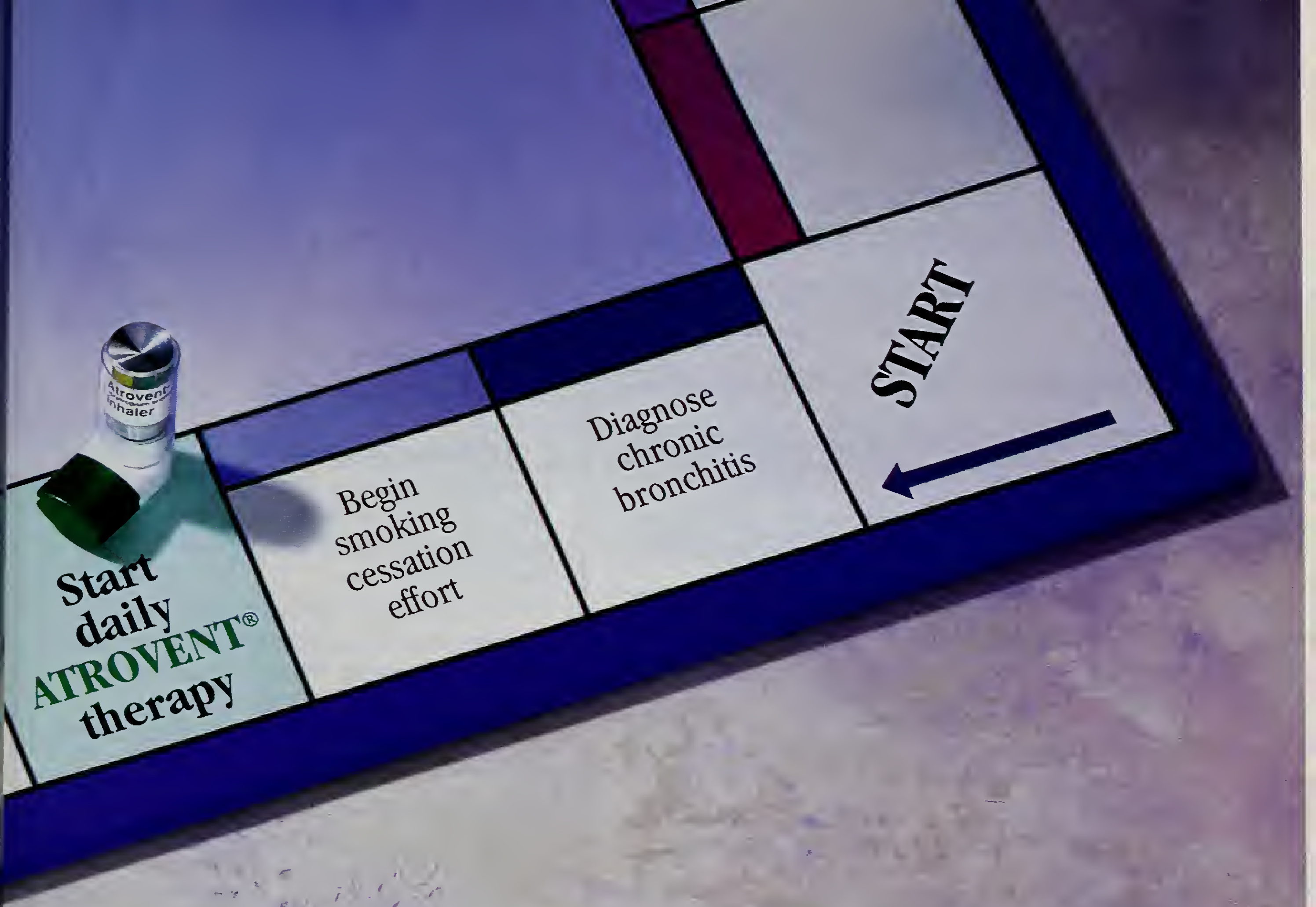
Reprinted with permission from *Trumbull Times*, Trumbull, written by MAJORIE J. PASSERI.



ATROVENT is a bronchodilator for maintenance treatment of bronchospasm in COPD. It is not indicated in the initial treatment of acute episodes of bronchospasm where rapid response is required.

Algorithm adapted from Roger C. Bone, MD. A step-care approach to managing COPD. *The Journal of Respiratory Diseases*. August 1991, pp 727-740, and Kenneth R. Chapman, MD. Therapeutic algorithm for chronic obstructive pulmonary disease. *American Journal of Medicine*. October 1991 (supplement 4A), pp 17S-23S.

The most common side effects in clinical trials were cough (5.9%) and nervousness (3.1%). ATROVENT should be used with caution in patients with narrow-angle glaucoma, prostatic hypertrophy or bladder-neck obstruction.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Please see following page for brief summary of Prescribing Information.

Atrovent®
(ipratropium bromide)
Inhalation Aerosol **Bronchodilator**
Brief Summary of Prescribing Information

CONTRAINDICATIONS Atrovent® (ipratropium bromide) Inhalation Aerosol is contraindicated in patients with a history of hypersensitivity to soya lecithin or related food products such as soybean and peanut. Atrovent should also not be taken by patients hypersensitive to any other components of the drug product or to atropine or its derivatives.

WARNINGS Atrovent® (ipratropium bromide) is not indicated for the initial treatment of acute episodes of bronchospasm where rapid response is required.

Immediate hypersensitivity reactions may occur after administration of ipratropium bromide, as demonstrated by rare cases of urticaria, angioedema, rash, bronchospasm and oropharyngeal edema.

PRECAUTIONS General Atrovent® (ipratropium bromide) should be used with caution in patients with narrow-angle glaucoma, prostatic hypertrophy or bladder-neck obstruction.

Information for Patients Patients should be advised that temporary blurring of vision may result if the aerosol is sprayed into the eyes.

Patients should be reminded that Atrovent is not intended for occasional use, but rather, in order to be maximally effective, must be used consistently as prescribed throughout the course of therapy.

Drug Interactions Atrovent has been used concomitantly with other drugs, including sympathomimetic bronchodilators, methylxanthines, steroids and cromolyn sodium, commonly used in the treatment of chronic obstructive pulmonary disease, without adverse drug reactions. There are no formal studies fully evaluating the interactive effects of Atrovent and these drugs with respect to effectiveness.

Carcinogenesis/Mutagenesis/Impairment of Fertility Two-year oral carcinogenicity studies in rats and mice have revealed no carcinogenic potential at doses up to 1250 times the maximum recommended human daily dose for Atrovent. Results of various mutagenicity studies were negative.

Fertility of male or female rats at oral doses up to approximately 10,000 times the maximum recommended human daily dose was unaffected by Atrovent administration. At doses above 18,000 times the maximum recommended human daily dose, increased resorption and decreased conception rates were observed.

Pregnancy/Teratogenic Effects *PREGNANCY CATEGORY B* Oral reproduction studies performed in mice, rats and rabbits (at doses approximately 2,000, 200,000 and 26,000 times the maximum recommended human daily dose, respectively) and inhalation reproduction studies in rats and rabbits (at doses approximately 312 and 375 times the maximum recommended human daily dose, respectively) have demonstrated no evidence of teratogenic effects as a result of Atrovent. However, no adequate or well-controlled studies have been conducted in pregnant women. Because animal reproduction studies are not always predictive of human response, Atrovent should be used during pregnancy only if clearly needed.

Nursing Mothers It is not known whether Atrovent is excreted in human milk. Although lipid-insoluble quaternary bases pass into breast milk, it is unlikely that Atrovent would reach the infant to an important extent, especially when taken by aerosol. However, because many drugs are excreted in human milk, caution should be exercised when Atrovent is administered to a nursing woman.

Pediatric Use Safety and effectiveness in children below the age of 12 have not been established.

ADVERSE REACTIONS Adverse reaction information concerning Atrovent® (ipratropium bromide) is derived from 90-day controlled clinical trials (N=254), other controlled clinical trials using recommended doses of Atrovent (N=377) and an uncontrolled study (N=1924). Additional information is derived from the foreign postmarketing experience and the published literature.

Adverse reactions occurring in greater than 1% of patients in the 90-day controlled clinical trials were as follows (ipratropium bromide N=254; metaproterenol sulfate N=249): (%=percent of patients) *Cardiovascular:* palpitations—1.8% v 1.6%. *Central Nervous System:* nervousness—3.1% v 6.8%; dizziness—2.4% v 2.8%; headache—2.4% v 2.0%. *Dermatological:* rash—1.2% v 0.4%. *Gastrointestinal:* nausea—2.8% v 1.2%; gastrointestinal distress—2.4% v 2.8%; vomiting—0% v 1.2%. *Musculoskeletal:* tremor—0% v 2.4%. *Ophthalmological:* blurred vision—1.2% v 0.8%. *Oro-Otolaryngeal:* dry mouth—2.4% v 0.8%; irritation from aerosol—1.6% v 1.6%. *Respiratory:* cough—5.9% v 1.2%; exacerbation of symptoms—2.4% v 3.6%.

Additional adverse reactions reported in less than 1% of the patients considered possibly due to Atrovent include urinary difficulty, fatigue, insomnia and hoarseness.

The large uncontrolled, open-label study included seriously ill patients. About 7% of patients treated discontinued the program because of adverse events.

Of the 2301 patients treated in the large uncontrolled study and in clinical trials other than the 90-day studies, the most common adverse reactions reported were: dryness of the oropharynx, about 5 in 100; cough, exacerbation of symptoms and irritation from aerosol, each about 3 in 100; headache, about 2 in 100; nausea, dizziness, blurred vision/difficulty in accommodation, and drying of secretions, each about 1 in 100. Less frequently reported adverse reactions that were possibly due to Atrovent include tachycardia, paresthesias, drowsiness, coordination difficulty, itching, hives, flushing, alopecia, constipation, tremor, mucosal ulcers.

Cases of precipitation or worsening of narrow-angle glaucoma, acute eye pain and hypotension have been reported.

Allergic-type reactions such as skin rash, angioedema of tongue, lips and face, urticaria (including giant urticaria), laryngospasm and anaphylactic reaction have been reported, with positive rechallenge in some cases. Many of the patients had a history of allergies to other drugs and/or foods, including soybean. (See CONTRAINDICATIONS.)

HOW SUPPLIED Atrovent® (ipratropium bromide) Inhalation Aerosol is supplied as a metered dose inhaler with a white mouthpiece which has a clear, colorless sleeve and a green protective cap. Atrovent Inhalation Aerosol with Mouthpiece (NDC 0597-0082-14), net contents 14 g. Atrovent Inhalation Aerosol Refill (NDC 0597-0082-18), net contents 14 g. Each 14 gram vial provides sufficient medication for 200 inhalations. Each actuation delivers 18 mcg of ipratropium bromide from the mouthpiece.

Consult package insert before prescribing. AT-BS-11/94

References: **1.** Ferguson GT, Cherniack RM. Management of chronic obstructive pulmonary disease. *N Engl J Med.* 1993;328:1017-1022. **2.** Chapman KR. Therapeutic algorithm for chronic obstructive pulmonary disease. *Am J Med.* 1991;91(suppl 4A):17S-23S. **3.** Bone RC. A step-care approach to managing COPD. *J Respir Dis.* 1991;12:727-740.

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The Physician Who Invented 221B Baker Street

STANLEY M. ARONSON, M.D.

"IN the year 1878 I took my degree of Doctor of Medicine at the University of London and proceeded to Netley to go through the course prescribed for surgeons in the army." So begins the reminiscences of John H. Watson, MD, late of the Army Medical Department. The novella, called *A Study in Scarlet,* relates details of his brief career in the Second Afghan War, his shoulder wound, and his slow convalescence back in London, "... that great cesspool into which all the loungers and idlers of the Empire are irresistibly drained."

Seeking a residence, Watson encounters a former colleague from St. Bartholomew's Hospital who tells him of an acquaintance—a curiously singular chap—also looking for lodgings. A meeting at the hospital's chemistry laboratory is scheduled for the next day. As Watson enters the laboratory a tall stranger exclaims "I've found it! I have found a reagent which is precipitated by haemoglobin and by nothing else." Under such precipitous circumstances does Watson meet his future roommate, Mr. Sherlock Holmes. They jointly agree to share a flat at 221B Baker St. A tale of nefarious deeds on two continents then unfolds. The story, published in December 1887, was authored by an obscure 27-year-old Plymouth medical practitioner, one Arthur Conan Doyle, MD.

The many Sherlock Holmes tales which followed are primarily adventure stories but imbued nonetheless with a deep morality and unwavering patriotism. Not much medicine gets practiced in these stories except for Watson either confirming the death of some victim or attending the immediate needs of a swooning lady. And except for the mysterious Irene Adler and some tangential mention of a Mrs. Watson, women are rarely encountered in these tales except as supplicants or potential clients.

Doyle was born in Edinburgh on May 22, 1859, son of a remote, neurologically impaired father and a stern, disciplined and well educated mother. The Doyles, two generations back, had migrated to Scotland from the Wexford region of Ireland, the family, some six centuries earlier, was from Pont d'Oilly, near Rouen, in Normandy. Over the years, the Doyles provided Britain with some of its most illustrious graphic artists. Doyle's first name, Arthur, was chosen by his mother, a woman obsessed with tales of chivalry. He described his childhood as grim and cloistered, and his education entirely parochial. Nevertheless he grew up strong, self-reliant and immensely athletic. As a youth he attended a Jesuit school in Lancaster where his favorite authors included Scott, Macaulay and the American, Oliver W. Holmes. In 1877 he entered Edinburgh University intent upon a medical career. During his clinical years he was most impressed with the eminent Joseph Bell, MD, famed for his deductive capacities, and Professor Andrew Maclagan, the local authority on forensic sciences. Doyle's medical education was harshly austere but competent. Years later when talking about his alma mater, he said: "... if she be a mother at all, she is one of a very stoic and spartan cast." Edinburgh awarded him the bachelor's degree in medicine August 1881.

In 1880, while still a medical student, Doyle signed on as ship's surgeon with an arctic whaling vessel, a tour of duty lasting seven months. Following graduation from medical school he took employment as a surgeon on a cargo vessel to the African west coast. In Lagos he developed typhoid fever, returning to England the follow-

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STANLEY M. ARONSON, M.D., Editor-in-Chief, *Rhode Island Medicine.* Reprinted with permission from *Rhode Island Medicine,* August 1995, vol. 78, no. 8, pp. 212-3.

ing January to recuperate. He finally established a modest general practice in the coastal city of Plymouth where his highest annual income never exceeded 300 pounds. A general practice such as his inevitably included the observation and care of infants and young children. Doyle periodically treated infants with vomiting, pallor and muscle weakness which he correctly diagnosed as lead poisoning incurred by the chewing of freshly painted cribs. He undertook a modest campaign to warn mothers of this great hazard. At one point, when his practice languished, he decided to specialize in ophthalmology and invested six months in postgraduate training at a Viennese eye clinic.

Doyle's practice, general or ophthalmologic, never really established itself. This allowed him time to write pieces of fiction, most of which were rejected. His 1887 attempt at a detective story, however, proved immensely successful and two immortal characters—John Watson, MD and Sherlock Holmes—were thus born. The demand for new Sherlock Holmes tales became insatiable, both in England and the United States, and Doyle became an international celebrity.

Were there historic roots for these two characters? Watson, a failed physician, bore some resemblance to Doyle. Some of the elements making up Holmes are more abstruse but can also be identified. The name, Holmes, was a conscious homage to Doyle's idol, the great physician-poet from Massachusetts, Oliver Wendell Holmes. Sherlock, on the other hand, was an eminent family name in the Irish counties of Wexford and Wicklow, places where King Edward III had given estates to the ancestral Norman family of the d'Oyles.

Twelve years passed, busily invested in the creation of more Sherlock Holmes tales, before Doyle resumed the practice of medicine. England was now engaged in a new war in South Africa, fighting the Boers. Doyle, 40 years of age but still robust, volunteered as a military physician, his hospital unit finally stationed in the interior African township of Blomfontein. A dysentery epidemic raged and his field hospital was devoted largely to the inpatient care of civilian patients, including Doyle himself. At one point, Doyle shared his quarters with a youthful English war correspondent named Winston Churchill. Within months Doyle retreated to England.

Doyle returned then to civilian life and tried vainly to kill off Sherlock Holmes. He had lost interest in the famous detective while becoming deeply immersed, instead, in the intricacies of mysticism and the spirit world. For three decades he invested his genius and funds in attempts, through seances, to establish communication with the intangible world beyond. He continued his periodic lecture tours and reaped immense profits from the sale of his books, now printed in 41 languages.

In the early spring of 1930, while lecturing on the continent, Doyle developed anginal pains. Despite prolonged rest on his English estate, he passed away on the morning of July 7, 1930. He lies in the Minstead churchyard, the epitaph on his tombstone saying simply: "Patriot, Physician and Man of Letters," medicine comfortably ensconced between two eminently Anglican virtues.

Other than Watson's near constant presence as Holmes' Boswell, is there something peculiarly "medical" in the Sherlock Holmes stories? Holmes was portrayed as singularly aloof, unemotional, somewhat misogynous and invariably professional—qualities that might accurately have described the Victorian physician with offices on Harley St (which, incidentally, is but a few blocks from Baker St). Clients did not purchase things from him as though he were a tradesman; rather, they were permitted to consult with him. Furthermore, he characteristically dissected the presented problems into their objective elements, seeking commonalities with the details of prior crimes maintained as his personal case records; and finally there was his reliance upon laboratory analysis. Rarely was his unflagging belief in the rational basis for puzzling events ever placed in doubt. This was the quintessential *fin de siecle* consulting physician—or pathologist. When, however, a client needed to be comforted or consoled, it was Watson who opened his heart. Holmes and his intellect were committed only to the problem, never to the distress of the client. Indeed, except for some moody violin scratching, isolated episodes of cocaine addiction and rare mutterings about Irene Adler, there was no earthly Holmes visible to the reader other than this dazzling intellect.

Conan Doyle, physician and writer, was knighted earlier this century. When learning this, Christopher Morley observed: "How ridiculous that he was only knighted. He should have been sainted."

50 Years Ago

From *The Connecticut State Medical Journal*

October 1945

30,000 More Physicians Needed in Post War Years, A.M.A. Says

Even after Uncle Sam has completed his job of demobilization, the United States will need about 30,000 more physicians than before the war, according to the September 1 issue of *The Journal of the American Medical Association.*

In the 45th annual report on medical education in the United States and Canada, Victor Johnson, Ph.D., M.D., secretary of the Council on Medical Education and Hospitals of the American Medical Association, said that during the past year there have been virtually no able bodied male students in medical training.

"Even after demobilization is complete, we shall probably need about 30,000 more physicians than before the war, primarily because of the requirements of the Veterans Administration (about 15,000 physicians) but also because of the needs of the peacetime Navy (about 5,000o) and the Army plus possibly a compulsory universal military training program (about 10,000),'' the Council's report said, adding:

"This estimate disregards extra physicians required to provide replacements for casualties among medical officers, medical assistance to liberated countries and the more complete and extensive medical care demanded in this country.

"Even if admissions, enrollments and graduations from our medical schools should continue at the present levels, only about half of this need would be met since 40,000 students enrolling would receive the M.D. degree in the period 1942 to 1948 and 24,000 physicians will have died during that time. Thus under the most favorable conditions only about 16,000 additional physicians will be available after the war to do the work of 30,000.

"From now until at least 1947, medical school freshmen must be women, or men who were physically disqualified, under or over the draft ages or veterans. Because people in these categories are limited in numbers, those admitted to our medical schools in the next year or two will be appreciably reduced in numbers or in quality."

Touching on the accelerated medical training program during the war period, the report said:

"By June 30, 1945 all medical schools in the United States except 10 and all but four in Canada had completed a cycle of four graduating classes in three calendar years. During these three years, to June 30, 1945 there have been 20,662 graduates in the United States. By comparison there were 15,535 graduates in the three immediately preceding war years to June 30, 1942. This represents the graduation of an extra 5,127 students in the past three years. This contribution of medical schools to the successful prosecution of the war is immeasurable...."

The Council added, however, that "during the past three years there has been a fairly general agreement that the accelerated program ... has been educationally undesirable."

The report said that Army students now in A. S. T. (ASTP, Army Student Training Program.—ed.) premedical work will be available for one class in 1945 in each medical school, and Navy V-12 men will also be assigned to 1945 entering classes. However, the medical schools estimate a reduction in the 1945-46 entering freshmen classes.

The Council strongly condemned recent proposals to establish new medical schools to meet the wartime shortage of physicians.

"There is no justification for the establishment of a medical school to meet such an acute temporary emer-

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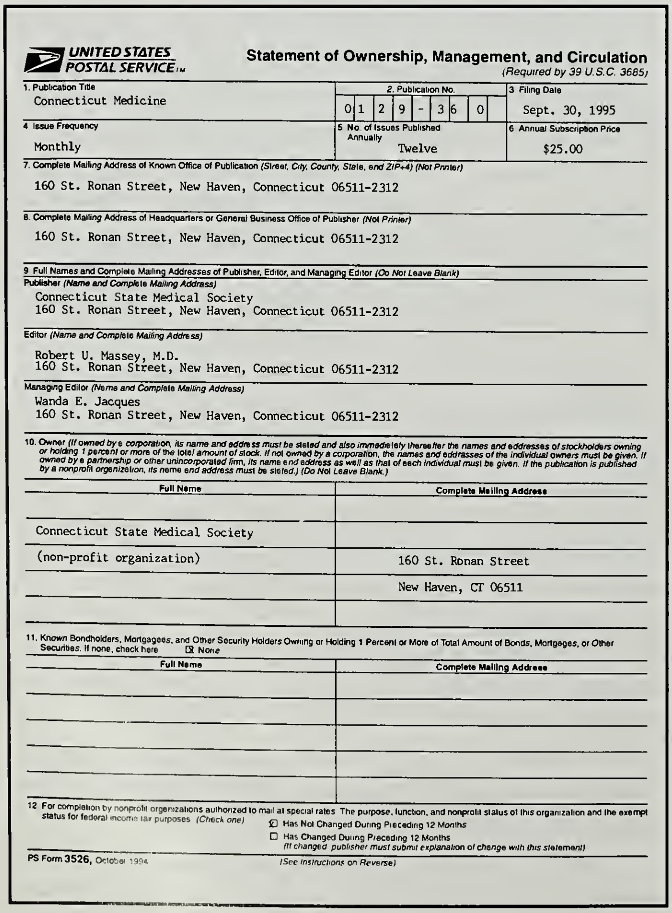
Reprinted from the *Connecticut State Medical Journal*, October 1945.

gency as the absence of physicians on military duty," the Council said. "Any overall increased present or post war need for additional physicians occasioned by the war can be provided by existing approved schools. The maldistribution of physicians as between the states or between urban centers and rural areas is a problem to be attacked primarily by other means than the production of more doctors in a given state."

The Council reported that in the 77 U. S. medical and basic science schools during 1944-45, there were 24,028 students studying medicine, which is an insignificant decrease of 638, or 2.6 per cent from the enrollment in the preceding session. Women students in the United States numbered 1,352 as compared with 22,676 men. In Canada there were 228 women and 2,325 men.

"During the 1944-45 session," the Council reported, "there were 129 part time or special students and 140 graduate students enrolled in some of the medical courses in 40 medical and basic science schools in this country and Canada. These numbers represent still further decreases below the figures of a year ago. In 1940-41 there were 1,167 graduate students in our medical schools. Last year's 140 is only 12 per cent of this number. The Selective Service System and the Army and the Navy have insured a deficiency in medical students, in quantity or quality, in the next few months or years. They have also provided for an even more prolonged deficiency in medical school teachers and investigators in the basic sciences."



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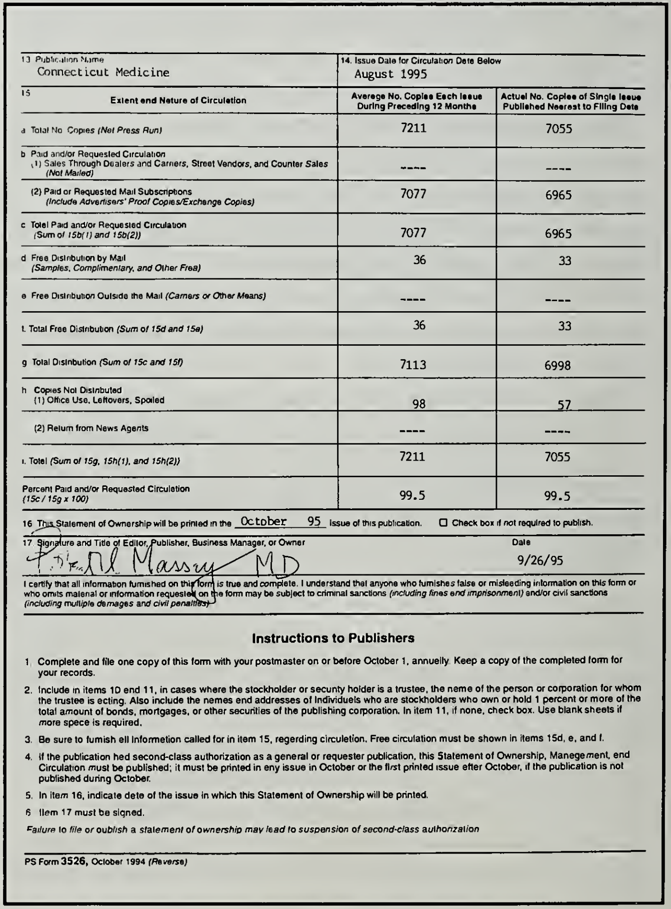

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PS Form **3526**, October 1994 *(Reverse)*

Financing of Graduate Medical Education

In our office practices, physicians are justifiably concerned about the proposed changes in Medicare. We are worried about the declining reimbursement schedules, the impact of managed care, increasing paperwork, and a general loss of autonomy.

In addition, we must be wary of proposed "reforms" beyond the office setting, reforms which will greatly affect the care our patients receive when hospitalized. One of the most important is reductions in federal funding for graduate medical education (GME).

As most of you know, Medicare reimburses teaching hospitals in two ways. Direct medical education payments are made to institutions to fund resident salaries and benefits. Indirect medical education (IME) payments are made to compensate for additional expenses associated with training programs and for the sicker patient population and greater uncompensated care associated with teaching hospitals. Currently, these payments total nearly six billion dollars annually.

In their zeal to reduce Medicare expenditures, Republicans will slash GME funding. This summer, our own Nancy Johnson (R-Conn.) proposed cuts as high as 50%. Had these cuts been enacted, our teaching hospitals would have been forced to reduce residency positions, thus denying our patients the essential services of these young physicians. Imagine one of Connecticut's large, urban hospitals losing half its house-staff—care would suffer tremendously. In addition, those hospitals which can barely pay their bills now would have been devastated by this loss of revenue, and some might have been forced to close.

To her credit, and in large part to the work of the AMA, Rep. Johnson scaled back her cuts to more reasonable levels. Highlights of her revised plan included a reduction of direct funding of residency positions from the current level of 142% to 110% of U.S. graduates by 1999 and restriction of this funding to first board certification only. There would be a gradual decrease in foreign medical graduate (FMG) reimbursement of 25% of the U.S. graduate level. Johnson's proposal would also reduce the indirect payment annual increases from 7.7% to 6% by 1998 (Initially the recommendation had been to 4%), at the same time changing the formula to protect the most "vulnerable" hospitals from these reductions. For long range planning, Rep. Johnson called for a private/public advisory commission to deal manpower and funding of GME. While these cuts were substantial, the AMA felt that with some revisions they could be acceptable to our profession.

But Rep. Johnson's numbers did not add up. To reach the holy grail of 270 million in Medicare savings over seven years, the final House recommendation is more severe than Rep. Johnson's revision. Now, funding for FMGs will be eliminated entirely by 1999, and the IME cut will occur in 1997, a year earlier. In addition, the composition of the long range manpower commission is purposely vague and does not mention physician representation. Most nefariously of all, there is a "look back" provision which says that if all this still isn't reducing expenses according to congressional targets, further cuts can be made at any time.

And the problem is more than just federal dollars. Another dilemma is that the federal government is the only payer directly reimbursing hospitals for residency training. As private carriers "negotiate" deep discounts from hospitals, their contribution to teaching programs has diminished. Despite this, their patients continue to receive the benefits and services of our residents.

The good news is some in Congress recognize this disparity. Bill Archer (R-Tex.), Chairman of the House Ways and Means Committee, has introduced legislation to form a GME trust fund that would be financed by eliminating and modifying corporate tax breaks. This would be an "all payer" financing system that would require the private sector to pay its fair share for residency training and thus soften the cuts in federal reimbursement.

(continued on page 634)

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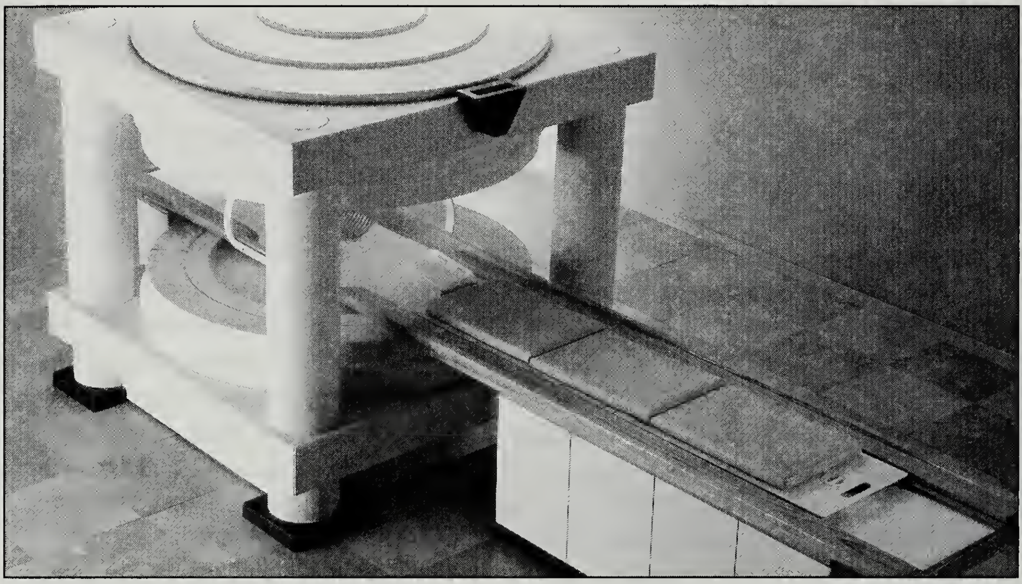

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REFLECTIONS ON MEDICINE

IRV, sGaw, Raw, and Other Matters

ROBERT U. MASSEY, M.D.

THOSE of my friends who are real historians and can read medieval Latin texts excite in me the mortal sin of envy. With a dictionary in hand and some recall of four years of high school Latin I believe I could make it if only the monkish scribes in those dark and drafty scriptoria had not used so many abbreviations and such odd symbols. For example, St. John's Gospel in the Gutenberg 42-line Bible, certainly a copy of a manuscript, begins:

In principio erat verbü: & verbü erat apud deû: et de9 erat verbü. Om̃ia ꝑ ip̃m facta sunt: & sine ip̃o factum est nichil.

Not bad, but, believe me, it gets worse; the inflected endings fade off into nothing, and all sorts of peculiar little symbols appear, like the 9 in the word that is clearly "deus." Couple that with Gothic letters that hardly match Jensen's Venetian type for clarity, and comprehension is remarkably impaired.

Something like this obscurity generally developed to set apart the powerful, learned, and priestly classes of society. The ancient Egyptians had two forms of writing: hieroglyphics, which means temple writing, and a cursive demotic form for ordinary people. In the early centuries of the present era Greek was the language of the upper classes in the Western Empire, and Latin was the vulgar tongue. Yet Latin became the language of scholarship in Western Europe until the early years of the last century. William Harvey used it in his lectures, except when the ancient tongue couldn't stand the strain, and he reverted to English, as in his 1616 Lumleian lecture where he inserts "as by two clacks of a water bellows to raise water" in his Latin text describing the passage of blood through the lungs and heart to the aorta.

In my medical school days we still used those beautiful symbols for ounces, drams, scruples, and grains, and lower-case Roman numerals for amounts, all centuries old. And we proudly learned the meaning of such esoteric combinations of letters as t.i.d., q.i.d., a.c., p.c., and h.s. Sometimes there was a barbaric mix of Latin and English, as in "Seconal gr iss at hs prn DNW." The delicious thing was that only the initiated knew what all that meant. There was even an HHH enema (high, hot, and a hell of a lot) for desperate situations.

Medical editors receive manuscripts replete with this kind of thing, but now in 1990s style. There is a list of abbreviations in the *AMA Manual of Style,* accompanied by the admonition always to spell out at first use. That list is obsolete a year after publication. Dictionaries of medical abbreviations are published; not more than 60% of acronyms appearing in submitted manuscripts ever make it into these. I recall laboratory tests of 50 years ago: CF&TT, VDB, II, WSS, GA&BD. Unexpanded these intruders would render papers from that time incomprehensible today.

In "Letters to the Editor" in this journal, a gastroenterologist complains of the exuberant growth of acronyms and other jargon, and has sent me a copy of a letter from a consultant, written, however, by a nurse practitioner, that shows how far this plague has spread. I think I betray no confidences by reproducing five lines of her letter:

> The patient was sent from the echo lab to the cath lab. Coronary angiography revealed (LM-10% distal, LAD-proximal 80%, Cx-70% before OM1, RCA-proximal 70%, normal LV). Surgical intervention was recommended.
>
> CABG was done on (date) (CABG x 6, Ao-PDA-LVbr, Ao-OM1-OM@, Ao-Diag, LIMA-LAD)....

As I read this I cannot shake the impression that the writer did not have a human being in mind at all, only a procedure, and even that not in three-dimensional clarity, but rather a piece of a procedure with neither past nor future. Apart from being incomprehensible to most physicians other than cardiac surgeons, it seems to me that language of this sort, if indeed it is language, diminishes the writer's view of the world, is, in fact, dehumanizing. This letter as part of a medical record has no staying power; 10 years from now it might as well have been written in runic characters.

No doubt Standard English does not work for mathematics, nor for describing elementary particles like quarks and mesons. Immunologists may pull off such clusters as CD10(nT,nB;gp100)J5 because they have to; no other way to do it. Try spelling that out at first use! But for most clinical reports, Standard English is the best thing going and its use forces the writer and reader both to comprehend and communicate. Besides obscuring, arcane language says clearly, "Hey, we're smarter than you guys." Worse than that, its habitual use dehumanizes in a profession that ought to be the most humane of the sciences.

ROBERT U. MASSEY, M.D., Professor Emeritus, Division of Humanistic Studies, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington.

This Month's Reading in Review

TIMOTHY B. NORBECK

"Typically, converting from traditional coverage to an HMO means a change in doctors, a frightful event for many elderly who have grown attached to their physicians."

Washington Post (3 September 1995)

"I don't want any HMO or any of that crap. If you vote for it, I'll vote you out."

Hazel Ann Helgesen's reaction to proposed
plans to moving Medicare patients into HMOs
(at a town meeting held by her Congressman in
Lake Geneva, Wisconsin).
Washington Post (3 September 1995)

United We Stand America's (UWSA) Ross Perot "expressed doubt" that "widespread use" of HMOs would hold down Medicare costs.... He said that HMOs "tend to turn the doctor into just an employee" and "the day we do that, we will have really damaged health care" because doctors should "play a leadership role and not be just lowered to bidding their services to an HMO."

New York Times (31 August 1995)

According to new data from Metropolitan Life Insurance Co., the growing number of AIDS-related deaths has "stalled" the country's 100-year-long increase in life expectancy, "wiping out longevity benefits from a continuing decline in infant mortality." National Center for Health Statistics information indicate that after peaking at 75.8 years in 1992, life expectancy dropped to 75.5 years in 1993 and has not changed since.

New York Times (30 August 1995)

Contending that smokers are more likely to die at a younger age, British life insurance company Stalwart Assurance is offering higher payments to pension beneficiaries who smoke.... To qualify, pensioners must sign a declaration stating that they have smoked an average of ten cigarettes a day for the past decade.

Newsday (8 August 1995)

When Social Security was established in 1935, the average American lived to age 61; those who reached 65 were expected to live for 12.6 additional years.... Today, the average life expectancy for a 65-year-old is 17.5 years.

Miami Herald (4 September 1995)

There are 52,000 centenarians in America today, more than 12 times the number just 30 years ago.

U.S. News & World Report (4 September 1995)

"While accident rates are stable, there are still lots of reasons why auto insurance premiums have gone through the roof in the past two decades. Cars cost more to fix and medical care is costlier. But the monster in the auto insurance box is the growth in successful claims for intangible injuries—what lawyers call pain and suffering. Newly published estimates by Rand Corporation break down by state the potential savings from prohibiting the recovery of damages for pain and suffering. Drivers in Connecticut, Hawaii, and Massachusetts would see their premiums fall by 40% or more. Over all, the potential saving is 31% of auto insurance premiums—some $26 billion annually."

New York Times (2 September 1995)

Arizona State University journalism instructor Larry Martel recently quizzed his undergrads on names every aspiring journalist should know.... Among the most disheartening responses:

Alzheimer's—Imported beer
Count Basie—Vampire
OSHA— Killer Whale at Sea World
Fidel Castro—Palestinian leader
(wife buys a lot of shoes)
Sandra Day O'Connor—Actress on "L.A. Law"

Newsweek (28 August 1995)

Only In America: Timothy Ray Anderson filed a lawsuit against a McDonald's restaurant in Milwaukee in May 1994 for injuries he suffered when a security guard shot him in the stomach as he attempted a robbery. Wrote Anderson's lawyer in the complaint, "The mere fact that you're holding up McDonald's with a gun doesn't mean that you give up your right to be protected from somebody who wants to shoot you."

Wall Street Journal (July 1995)

TIMOTHY B. NORBECK, Executive Director, Connecticut State Medical Society.

Letters to the Editor

Letters to the Editor are considered for publication (subject to editing and abridgement), provided that they are submitted in duplicate, signed by all authors, typewritten in double spacing, and do not exceed 1-1/2 pages of text (excluding references). They should not duplicate similar material being submitted or published elsewhere. Letters referring to a recent Journal article should be received within six weeks of the article's publication.

Consent for Release of Confidential Disciplinary Records

To the Editor: Physicians licensed to practice in Connecticut should be aware of the probable adverse impact on the practice of medicine that exists as a consequence of the use, by managed care providers, hospitals, and other health care entities, of a "Consent for Release of Confidential Disciplinary Records," (the release form), devised by the Division of Medical Quality Assurance (DMQA) of the Connecticut Department of Public Health and Addiction Services.

The very existence of this release form is a no-win situation, a "Catch 22" for physicians in Connecticut. Managed care organizations wish to limit physician participants for economic reasons. They would welcome an excuse to reduce the size of their physician panels. One way to accomplish this is to be discriminating about those that they initially enroll and recredential. Physicians who have complaints made against them to the Division of Medical Quality Assurance, or who are currently under the purview of the Committees on Physician Health at the state or county level for drug or alcohol abuse or psychiatric illness, can be identified and winnowed out through release of records held to be "confidential." If the release form is not signed, or if the signer specifies that certain documents are not to be released to the inquiring agency, this can easily be interpreted as "something to hide" and the inquirer could deny acceptance of that physician applicant in "good conscience."

Doctors should know if a file is opened in the office of DMQA as a result of a patient complaint made about the physician. The vast majority of these complaints (approximately 80%) are spurious and, if investigated, are dismissed. But this process takes time because of DMQA staff limitations. Meanwhile, if the complaint against a physician is not acted upon promptly, the file remains "open" and is subject to report if the "release form" has been signed by the physician. Also the physicians may not know if complaints have been brought against them, and, if by chance, they become aware that one has been made, the DMQA will not always tell the physician the nature of the charge and who filed it. Meanwhile managed care panel participation and hospital privileges can be denied on the basis that an "open" file exists.

Physicians who fall under the jurisdiction of the committees on physician health are no luckier. The "release form" specifies that they have the right to contact the Connecticut State Medical Society or the County Medical Association prior to signing the release form. What such a contact will produce as far as protecting a recovering physician from discrimination and economic harm is uncertain. Any admission of a history of drug or alcohol use may be enough to deny that physician an opportunity to practice medicine. Such discrimination, of course, would be a violation of the physician's right under the Americans With Disabilities Act, but what recovering doctor can afford a costly legal battle at this juncture?

We urge our fellow physicians to demand that the Connecticut State Medical Society, a body that should represent the best interests of all of us, act immediately to discuss and clarify what we have presented. The state medical society should seek to curtail this egregious solicitation of information from a bureaucratic entity, the DMQA—an entity that has the statutory obligation to maintain the confidentiality of issues concerning physicians subject to its authority until complaints against them have been fully processed. The "release form" is simply a vicious and sly means to circumvent safeguards regarding the dispensing of unfair, reckless, and damaging accusations against our colleagues to economic entities that are capable of harming doctors by limiting their ability to practice medicine.

Henry N. Blansfield, M.D.
Danbury

Peter O. Rostenberg, M.D.
New Fairfield

A Response to the "Use of Acronyms (UOA)"

To the Editor:

> A savage-creating stubborn fellow, uncurbed, unfettered, uncontrolled of speech, unperiphrasic, bombastiloquent.—Aristophanes

The comments by Dr. James Jones and you regarding the "Use of Acronyms (UOA)" as published in the August issue of *Connecticut Medicine* should stir the literary ire of all physicians who are offended by atrocious medical communications in general. This type of writing with acronyms, buzz words, and catch phrases represents a form of professional tribalism. It exists in epidemic proportions.

As practicing physicians we do not expect all professional writing to be Oslerian treatises. Indeed, brevity, clarity, and completeness in reports would be most appreciated. It is equally galling to refer a patient and receive only a history and physical examination written by some unknown resident, intern, physician's assistant, orderly, etc. instead of a direct communication from the consultant. Apparently such specialists believe the generalist incapable of performing basic tasks. All too often the referring physicians receive no additional information.

Perhaps Dr. Jones might consider my approach to this professional abomination. He should return such correspondence to the author(s) and request more lucid writing. It just might embarrass the writer enough to improve his/her communication skills. After all we are supposed to be a learned profession.

Lee Sataline, M.D.
Cheshire

Conversion of CMIC Under Serious Consideration

To the Editor: CMIC, was implemented in 1984 by your CSMS, at a cost of several hundred thousand dollars, to provide medical liability insurance to it members, was incorporated under the status of the state of Connecticut as a "mutual" rather than a "stock" corporation to take advantage of the Federal tax breaks inherent in such a structure. However, the Tax Reform Act of 1986 (TRA86) negated that advantage.

Since implementation, CMIC has become a very successful commercial insurance company as attested to by its having accumulated a cash fund of at least $250 million. It has been estimated that some 60% of this fund is set aside as actuarial reserves to pay estimated future payments for malpractice claims. There is no question but that the current and past policyholders have played a great part in the putting together of such a very successful and profitable insurance company—as a result of their foresight and investment as CSMS members. Such success and such profitability cannot but make CMIC an attractive target with inherent rewards, as manifested by those other two physician founded successful and profitable insurance companies, PHS and M.D. Health Plan.

The former PHS, converted from a "mutual" company to a "stock" company by its physician board, rewarded its CSMS members by going public on the NASDQ—to the great satisfaction of its CSMS members; the later, M.D. Health Plan, already a stock company under TRA86, rewarded its CSMS member stockholders handsomely upon their voting to be acquired by Health Systems International, a New York Stock Exchange listed company. Both company's stockholders have the option of participating in the growth of their companies by either staying with the stock they have or buying stock with the cash they receive. No such option exists for CMICs CSMS members.

However, with CMIC, as a mutual company, if its management were to arrange its takeover in the future, may it be 5,10,20 years or more down the road, only their policyholders *at that* time would be rewarded, not as the stockholders of PHS and M.D. Health Plan were, *ie now.* The conversion of CMIC from a mutual to a stock structure would certainly reward not only the **current** policyholders, who for the past eleven years have been part of CMICs rise to its current status.

It has been suggested that an equitable formula for all CMIC policyholders for conversion would be one share for each year the CSMS members was insured by CMIC.

At the Annual Meeting of CMIC this year, its leadership agreed to seriously consider the presentation that proposed that CMIC consider converting from a "mutual" to a "stock" structure. Such presentation proposed that an independent group of policyholders (with assistance from an outside consultant), together with some members from the CMIC board of directors *and* management be established to explore the proposed and report back to the policyholders with six months, *ie* December 1995.

To date, CMIC has had two board meetings whose agenda's did not include the agreed upon proposal. As policyholders, one can force this issue by using proxies at CMICs next annual meeting in May 1996 to insure that its board of directors is made up on CSMS physicians who will seek to carry out the agreement made at the May 1995 meeting. Hopefully, such action will not be necessary.

In conclusion, I would like to suggest that all current policyholders either talk, or write, with return reply requested, directly to the CMIC board members from their county to now actively look into the agreed upon proposal.

Anthony P. Redmond, M.D.
Greenwich

President's Page ... ***(continued from 629)***

But the details of Rep. Archer's plan are unknown and its implementation no sure bet. It's far easier for Congress to cut residency funding then to make the private sector pay its share. To many Republicans, a GME all-payer proposal quacks like a tax.

Given the current budget deficit and the political climate, the AMA recognizes that reductions in GME are inevitable. But this latest House proposal contains cuts that are both too deep and too quick. For those hospitals with large teaching programs and those with predominantly FMG residents, the future is bleak. The ultimate victims will be our patients, as they lose the care of today's house officer and tomorrow's attending physician.

The AMA will continue its efforts to preserve our residency programs from the budgetary juggernaut. Meanwhile, write your legislators. They need to know how important GME is, and we're the only ones who can tell them.

Dickerman Hollister, Jr., M.D.
President

From the Executive Director's Office

COUNCIL MEETING

23 August 1995

Attendance

In addition to the Chairman , Dr. Joseph Czarsty, were Drs. Ahamed, Beck, Bigos, Bobruff, C. Czarsty, Deren, Eslami, Franklin, Freedman, Geary, Handelman, Hollister, Kamens, Katz, Keating, McDonnell, Montegut, Mushlin, Redmond, Sadowski, Sosa, Timmerman, Watson, Wolfson, Zanker, and Zeppieri.

Also present were: Mr. Norbeck, Ms. Lindquist, Mr. Brunell, Ms. Schaffman, Ms. Norbeck, Ms. Morelli, Mr. Sullivan, Mr. Staples (all CSMS staff), Mr. Rick Fiorentino (HCMA Staff), Mr. Michael Conway (FCMA Staff), Ms. Ann Harney (NHCMA Staff), Myron Genel, M.D., David Thompson, M.D. (CSMS-IPA), and David Parke, M.D., Chairman, CSMS Committee on Legislation.

Absent were: Drs. Herzog, Lesnik, Scarpa, Schwartz, Tesoro, Van Nostrand, and Wetstone.

Reports of Related Organizations

CPRO: Dr. Kamens reported that CPRO is continuing in the educational mode with projects now advancing from myocardial infarction to cardiac failure and pneumonia, and that the hospitals have been very cooperative. They look forward to working with the CPRO and getting information regarding the process and quality of care delivered, where the shortcomings may be, and how they may be corrected. He further reported that there has been software developed at CPRO that makes it possible for any hospital in the country that acquires this software to look at its own data, its own process of care, performance information, etc., and compare it with a statewide average and every other hospital with the hospital.

For some time there has been the idea of reformulating CPRO along the lines of an educational agency so that it can provide public information as well as medical information because of what is anticipated in the legislative changes in Medicare. He reported that it is very difficult for the beneficiaries to understand Medicare as it exists today, and when Medi-Choice comes about, it will be a nightmare for the beneficiaries; CPRO is positioning itself in the role of a resource for the elderly. The report was received as information.

CSMS-IPA: Dr. David Thompson, president of the CSMS-IPA reported that now that he is working with Health Systems International Health Plan, they have access to larger national corporations with outlets in Connecticut. He reported that the IPA is solely responsible for all physician costs related to providing care for its members. The membership is growing rapidly including the new Workers Compensation program and Managed Medicaid program. He informed the Council of the negotiations being held with the state to extend their contract. He further stated that the Chief Medical Officer of M.D. Health Plan is assisting the IPA in new methods to control costs. The report was received as information.

Report of the President

Dr. Hollister reported that he has had a number of meetings with various individuals as follows: He met with Richard Ratzan, M.D., chairman of the Connecticut Medical Examining Board to discuss items of mutual interest and develop a closer relationship between CSMS and the Board. He also met with Jesse Frankl, commissioner of Workers Compensation, who now has jurisdiction over any managed care organizations doing Workers Compensation cases. He reported that they discussed fee schedules and downcoding, how the protocols were written, and that CSMS would like to be more involved in the writing of the protocols. He also met with Stephen Harriman, new commissioner of Public Health, who expressed his appreciation that CSMS did not lobby against this appointment. Dr. Hollister stated that he discussed the issue of managed care, Medicare Waiver, and the fact that the Department of Social Services would oversee Medicaid Managed Care. He expressed interest in who was going to head the department and how we could be assured that there would be no abuses and that there would be quality medical care. Mr. Harriman expressed interest in working with CSMS. He reported that he was accompanied by Sullivan & LeShane, CSMS lobbyists, at all these meetings. The report was received as information.

Report of the Executive Director

Mr. Norbeck expressed his thanks to the Fiscal Subcommittee and the Council for financing the San Francisco reception after his inauguration as President of the American Association of Medical Society Executives. He reported that Drs. Eslami and Sadowski attended and had the opportunity to meet with many of his medical executive colleagues. It was also reported that the cost of the reception was below the budget allowed and it was a very fine reception.

He reported that his counterpart in Maryland called and informed him that the Maryland delegation to the AMA is trying to determine whether or not to introduce at the December meeting a resolution to the AMA to form a national physicians health insurance company. The AMA did a feasibility study in 1985 and at that time the Board felt it was too great a financial risk. Maryland now argues that if the 300,000 AMA members each put in $5,000 for stock, the AMA could raise 1.5 billion dollars for a company. The Maryland resolution was as follows: "Therefore, be it resolved, that the AMA Board of Directors study the feasibility of establishing a national physician owned and operated health insurance company."

It was reported that the CSMS briefs on behalf of Dr. Napoletano and the patient Barrett Hollis, the two New Britain deselection suits against CIGNA, were filed on 11 August. The AMA also filed an *amicus* brief.

Mr. Norbeck also reported about the case of a group of hospital anesthesiologists who sued Aetna in federal court alleging that the insurer threatened to get them fired if they didn't agree to give up final say on patient care. When the physicians attempted to negotiate changes in the HMO contract, Aetna threatened to stop doing business with the hospital where the physicians worked, obviously placing their jobs in jeopardy. The suit is believed to be the first time physicians have sued over efforts to dictate standards of care.

He also reported on the political tug-of-war going on in Congress between the Democrats and Republicans over Medicare. The Democratic pollster Mark Mellman stated that there is compelling evidence that the Democrats had their fortunes changed directly related to the Medicare issue and also noted that there has been an 11% drop since January of this year in the numbers of Americans who support GOP control of Congress. The *Washington Post* report of an alleged secret memo in the Ways and Means Committee suggests huge premium hikes as part of the Republican Medicare Plan. The *Post* stated the memo favors increasing Part B premiums from its present 31% of costs to 50%. Chairman Bill Archer adamantly denied this statement. The debate is getting ugly as Republicans say that they must save Medicare from bankruptcy and Democrats claim that Republicans want to cut Medicare in order to pay for their promised tax cut. The battle over Medicare promises to be one of the ugliest political wars in memory and will have a significant impact on the 1996 election. He stated that it is also interesting to note the insurer presence in all this. Charles Kahn, who was a top official at HIAA for two years and oversaw the Harry & Louise ad campaign, is now running the Ways and Means staff that is writing Medicare legislation.

It was VOTED to refer the Maryland delegation resolution recommending that the AMA Board of Trustees study feasibility of establishing a national physician owned and operated health insurance company to the CSMS delegation for study and report back to the Council.

AAMSE Reception

Dr. Joseph Sadowski reported that he and Dr. Mehdi Eslami went to California to act as hosts at a reception in honor of Mr. Norbeck's installation as president of the American Association of Medical Society Executives. He reported that there were three physicians at the affair, Dr. James Todd, Dr. Eslami, and himself. He stated that the medical executives from other states were extremely impressed with the fact that two physicians from Connecticut traveled to California to be at Mr. Norbeck's inauguration. He reported that he got the feeling that it was rare that physicians from other organizations attended these affairs in honor of one of their employees being installed as president. He believed that we set a precedent for the future that when a new president is installed they are going to expect or invite the leaders of that organization to attend the event. He commended Mr. Norbeck and stated that he would be an extremely good and able leader of the organization, which is very promedicine.

Resolution on Managed Care

A resolution on "Managed Care" was referred to the Council by the House of Delegates for further study and in recognition that many of the issues raised have been addressed or were currently being addressed. CSMS staff was requested to prepare an analysis of the resolution. The staff report was accepted by the Council at the last meeting and referred the issue to the Ad Hoc Committee on Health Care for study. Dr. Ahamed, chairman of the Ad Hoc Committee, reported that a meeting of the committee was held on 21 August and although there was much discussion, no definitive conclusions were reached. He stated that the committee was planning another meeting and that he would report back to the Council at the next Council meeting.

Medicare Payments

At the last Council meeting a communication was received from a member concerning reimbursement by Medicaid of the full deductible for qualified Medicare beneficiaries. It was reported that there have been successful actions brought in four Federal Circuit Courts requiring Medicaid to pay the full deductible. CSMS legal counsel, Cam Staples, was requested to obtain additional information on this subject. He reported that he looked into the issue of payment of out-patient psychotherapy for dually eligible Medicare patients. He reported that Connecticut already pays for dually eligible services up to the Medicare rate, except for out-patient psychotherapy services. The Pennsylvania suit that was referred to resulted in Medicare paying the full deductible, but still not for outpatient psychotherapy services. Pennsylvania is still attempting to obtain full payment for these services and will keep him apprised of the results of their efforts.

Medicaid Managed Care

Dr. Katz reported that a new payment schedule was distributed from the Department of Social Services in July 1995. He stated that the schedule was based on figures that were four or five years old. The question was raised as to whether Medicaid is attempting to use the Medicare waiver to roll back fees, etc. It was VOTED to refer the issue to an appropriate committee for study.

The Science Coalition

It was VOTED to join The Science Coalition, which comprises leaders of companies, associations, and universities across the country committed to sustaining the federal government's historic commitment to a U.S. world leadership in basic science research.

U. S. Pharmacopoeia Convention

It was VOTED to appoint James E. O'Brien, M.D., Wethersfield as the CSMS delegate to the U.S. Pharmacopeial Convention for the 1995-2000 quinquennium.

Nominations for Positions on AMA Councils

A communication from the AMA concerning nominations for positions on AMA Councils was referred to the AMA delegation for their consideration. The Chairman of the Council requested any member who wishes to be considered for office to contact Dr. Kamens, Chairman of the AMA delegation.

Certificate of Need

It was VOTED that CSMS should testify at the public hearing on Certificate of Need and that the Council favor abolition of the CON law.

Reminder:

House of Delegates Meeting—15 November 1995

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Factors Associated with Early Onset Pneumonia in the Severely Brain-Injured Patient

STEVEN P. WORATYLA, M.D., ANTHONY S. MORGAN, M.D., LINDA MACKAY, M.A., BRUCE BERNSTEIN, PH.D., AND CARLOS BARBA, M.D.

ABSTRACT—An analysis of 125 patients with closed head injury was completed in order to identify the risk factors involved in the development of early pneumonia.

Pneumonia was diagnosed in 60% of the patients. Early pneumonia developed in 47.8% of the patients. Brain-injured patients who developed early pneumonia were found to have a lower Glasgow Coma Scale (GCS) score. Early pneumonia was found more often in patients with swallowing disorders and evidence of aspiration. Patients who had been intubated in the field were found to be at greater risk for the development of early pneumonia than those intubated in the hospital. Patients with early pneumonia had prolonged intubation times, intensive care unit stays, and hospital stays.

This study suggests that a GCS score less than 5, evidence for swallowing disorders and aspiration, and field intubation are risk factors for early pneumonia in the brain-injured patient.

Introduction

THE most common causes of mortality in the trauma patient are severe brain injury and infection.[1] It has been shown by previous investigators that pneumonia is common in the trauma patient, and with pneumonia comes increased morbidity and mortality.[2-6] Patients with closed head injury have an increased incidence of pneumonia.[7-10] Pneumonia in these patients appears to occur earlier than in other trauma patient groups.[8,10] Hsieh et al studied 109 patients with closed head injury and found a 41% incidence of pneumonia, with the majority occuring during the first three days of hospitalization.[8] Helling et al studied 82 patients with severe brain injury and mean GCS of 9, and found a 41% incidence of pulmonary infection occuring at an average of 3.2 days of hospitalization.[10] Our investigation uncovers risk factors that increase the probability of developing pneumonia in the closed head-injured patient, especially during the early period. These risk factors may be used to classify certain brain-injured patients as "high risk" for developing pneumonia and in whom prophylaxis may be implemented.

Materials and Methods

The medical records of patients admitted to the Saint Francis Hospital (level I trauma center) Trauma Registry from August 1984 to July 1994 were reviewed. Patients with a diagnosis of closed head injury requiring mechanical ventilation were admitted to the study; patients with open head injuries, penetrating trauma, or who had prior antibiotic treatment were excluded. Pneumonia of early onset was defined as that occurring seven days or less after injury. The nonearly group comprised those patients who did not develop pneumonia or those with pneumonia

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Presentation: Connecticut Society of the American Board of Surgeons, Annual Meeting, December 1992, Cromwell.

Reprints: Anthony S. Morgan, M.D., Department of Surgery St. Francis Hospital and Medical Center, Hartford, CT 06105. Tel: (203)548-4633.

Table 1.—Clinical Characteristics of Population	
Mean age (range)	27 years (14 to 85)
Gender ratio (M:F)	4:1
Race	White 80% Hispanic 14% Black 6%
Alcohol use	43%
Mean GCS	6.0
Mean ISS	35.0
Aspiration	45%
Swallowing Disorder	55%

occuring after seven days following injury. The two groups were then compared. The criteria for the diagnosis of pneumonia were a white blood cell count greater than 10,000/mm^3, a fever greater than 38.6°C, an infiltrate on chest roentgenogram, and positive sputum cultures. The criteria used for the diagnosis of aspiration were suctioning of gastrointestinal contents from the trachea, witnessed aspiration during or following resuscitation, or evidence of aspiration on modified barium swallow testing. Swallowing disorders were assessed using the modified barium swallow done after extubation. Organisms were identified by serial sputum cultures using standard laboratory methods. GCS and Injury Severity Scores (ISS) were calculated for all patients. The length of hospital and intensive care unit stays was recorded as well as the length of time intubated. The place of intubation, whether field or hospital, as well as the route of intubation, nasal or oral, were recorded for all patients. Blood alcohol levels, history of steroid use, and antacid or H_2 blocker use were also noted. The mechanism of injury was recorded as were the age, race, and gender of all patients. Antibiotics administered were recorded. Cost data were reviewed. All patients were followed for the entire length of hospitalization. Statistical analysis was performed using the Student's *t* test and χ^2 analysis.

Results

One hundred twenty-five trauma patients met the criteria for inclusion into this study. Injury occurred as the result of a motor vehicle accident in 85% of cases and a fall in 15% of cases. The mean age of patients was 27 years with a range of 14 to 85 years. Males predominated, with a male/female ratio of 4:1. The use of alcohol was involved in 43% of cases. The mean GCS was 6 and the mean ISS was 35. Aspiration was involved in 45% and a swallowing disorder was documented in 55% of patients (Table 1). The early pneumonia period was defined as pneumonia occurring seven days or less after injury (Table 2). Pneumonia was diagnosed in 60% of patients. Eighty percent of these patients developed early pneumonia, for a 47.8% incidence of early pneumonia in the entire cohort. The most common organisms isolated were *Staphylococcus aureus* (37.5%) and *Hemophilus influenzae* (15%). These were also the most common organisms isolated in the early onset period (Table 3). All patients with pneumonia had white blood cell counts greater than 10,000/mm^3, temperature spikes greater than 38.6°C, evidence of an infiltrate on chest roentgenogram, and positive sputum cultures.

Cephalosporins and vancomycin were the most common antibiotics administered in the early period. When comparing the early group with the nonearly group, the mean GCS was lower (5.2 *vs* 7.2), the incidence of aspiration was higher (56.3% *vs* 34.3%, *P*=.011), and swallowing disorders were more common (68.8% *vs* 42.96%, *P*=.003)(Table 4). Field intubation was significantly more frequent in the early group compared to hospital intubation (78.1% *vs* 22.9%, *P*=.023). There was no significant difference in ISS, H_2 blocker use, steroid use, or route of intubation (nasal *vs* oral) when patients with early and nonearly pneumonia were compared. Further significant findings associated with early pneumonia were a prolonged intubation period (15.1 *vs* 9.0 days, *P*=.044), a prolonged ICU length of stay (18.4 *vs* 10.7 days, *P*=.035), and a prolonged hospital length of stay (53.3 *vs* 33.9 days, *P*=.013) (Table 4).

The cost of hospitalization was significantly higher for the early group, almost twice as much compared with the nonearly group. The mortality rate for the early group was 9.3%. This was more than twice the mortality rate of the nonearly group. (Table 5).

Discussion

Infections, and more specifically pneumonias, are among the major causes of morbidity and mortality in the brain-injured patient.[1] Pulmonary complications of brain injury

Table 2.—Daily Incidence of Pneumonia

Day	*Cumulative %*	*Daily %*
1	2.5	2.5
2	15.0	12.5
3	40.0	25.0
4	60.0	20.0
5	65.0	5.0
6	72.5	7.5
7	80.0	7.5
8-44	100.0	—

Table 3.—Microbiology

Organism	*All pneumonias (%)*	*Early Pneumonias (%)*
S. aureus	37.5	40.6
H. influenza	15.0	18.8
S. aureus / H. influenza	15.0	18.0
Enterobacter	10.0	9.4
Branhamella	2.5	0
K. pneumonia	2.5	0
P. aerogenosa	5.0	3.1
H. influenza / P. aerogenosa	2.5	3.1
S. pneumonia	2.5	3.1
P. mirabilis	2.5	0
S. aureus / P. aerogenosa	5.0	3.1

Table 4.—Comparison of Data

Variable	*Early pneumonia*	*Nonearly pneumonia*
GCS	5.2	7.2
ISS	33.8	34.5
Number days intubated	15.1	9.0
Hospital LOS (days)	53.3	33.9
Intensive care unit LOS (days)	18.4	10.7
Field intubation (%)	78.1	51.4
Hospital intubation (%)	21.9	48.6
Oral intubation (%)	59.4	77.1
Nasal intubation (%)	40.6	22.9
Swallowing disorder (%)	68.8	42.9
Aspiration (%)	56.3	34.3

can range from mild tracheobronchitis to severe respiratory failure and adult respiratory distress syndrome. Severe brain-injured patients usually require prolonged mechanical ventilation and are at risk for aspiration and the subsequent development of pneumonia.[11] In this study we define a specific group of patients who developed

Table 5.—Outcome

	Mortality
Early pneumonia	9.30%
Nonearly pneumonia	4.25%

Figure 1.—Mechanism of Injury

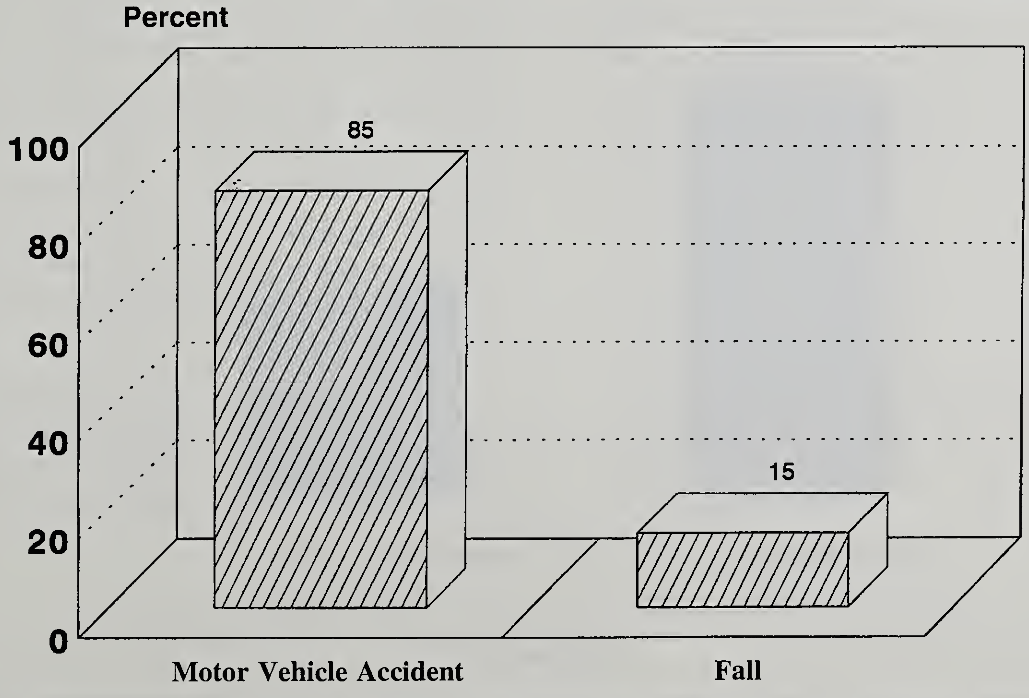


Figure 2.—Incidence of Pneumonia

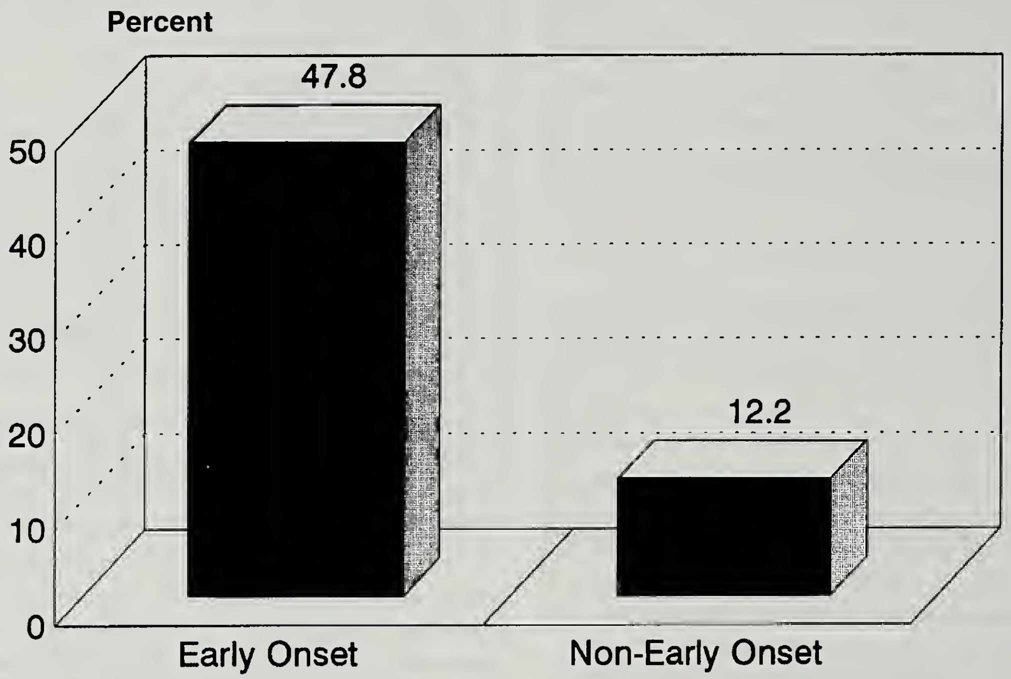
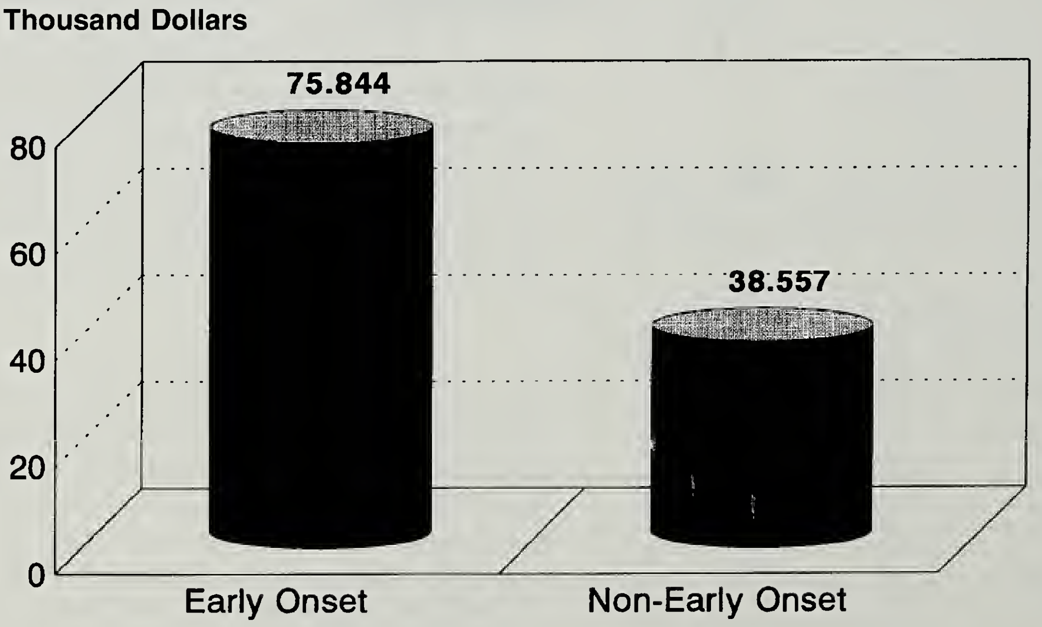


Figure 3.—Cost Data



Pneumonia

pneumonia within seven days after injury as the early group. Early pneumonia has been described as occurring from three to seven days after injury.[8,10,12,13] In our study, 60% of patients developed pneumonia, and 80% of these developed pneumonia within the first seven days after injury. The most common organism in the early group was *Staphylococcus aureus* followed by *Hemophilus influenzae.* This agrees with studies done by Rello et al in multitrauma patients showing *Staphylococcus aureus* was the most common oraganism.[2,14] Stoutenbeek et al showed that *Staphylococcus aureus, Staphylococcus pneumonia,* and *H.mophilus infuenzae* were the most common organisms in early pneumonia patients.[13] Rodriguez et al have indicated gram negative organisms were more frequently found in trauma patients.[9] Miller and Caplan found that *Hemophilus influenzae* was the common pathogen in their series of trauma patients.[15]

We identified certain risk factors for the development of early pneumonia. Patients who had been intubated in the field had a greater risk of developing early pneumonia, as did patients with a GCS of 5 or less, associated swallowing disorders, and documented aspiration. Closed head injuries may lead to swallowing disorders and increased risk of aspiration because of loss of pharyngeal reflexes.[16] Mackay et al reported a 41% aspiration rate in severely brain-injured patients.[17]

Hsieh et al found that patients who developed pneumonia following closed head injury had longer ICU stays and longer hospital stays.[8] Rodriguez et al found that multitrauma patients who developed hospital acquired pneumonia had a significant increase in days during which they were mechanically ventilated, days in the ICU, and days in the hospital.[9] In our study, early pneumonia patients had an associated increase in morbidity and mortality; with longer ventilator dependency, longer ICU stays, and longer hospital stays than the nonearly group. Therefore, we conclude that early pneumonia sets off a chain of events leading to a higher morbidity and mortality. These events also increase the cost of hospitalization.

Pulmonary complications from brain injury play a major role in the morbidity and mortality of trauma patients.[18] Prevention of early infectious complications, specifically pneumonia, has been attempted by others.[13,18-21] Stoutenbeek et al found that patients treated with systemic antibiotic prophylaxis during the first days post-trauma, in combination with intestinal and oropharyngeal decontamination, had a significantly reduced incidence of early pneumonia.[13] We believe that brain-injury patients who are at risk for developing early pneumonia are an identifiable group for whom preventive care should be instituted.

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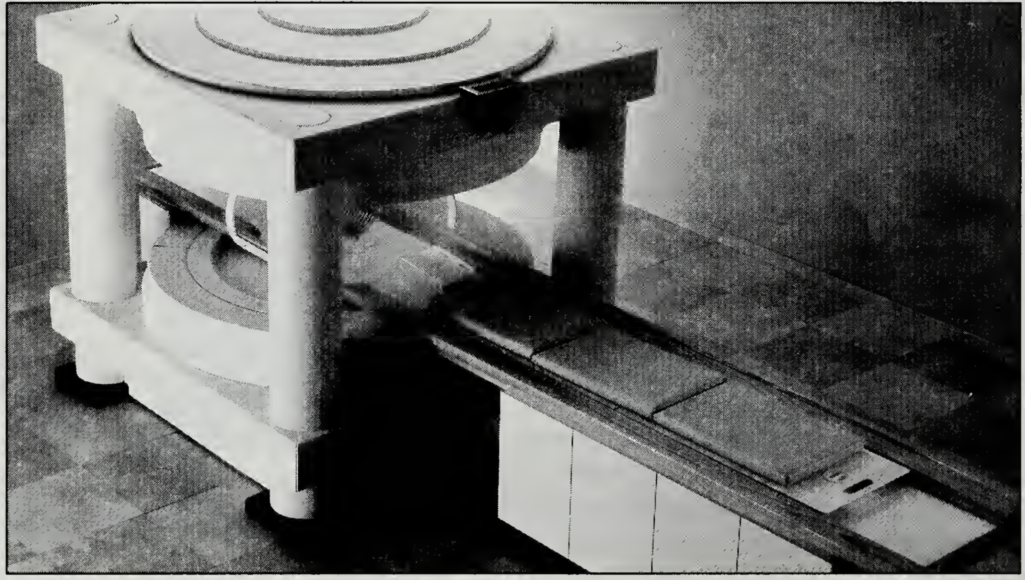

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Strongyloidiasis Masquerading as Inflammatory Bowel Disease in a Patient with Lupus Erythematosis: A Case Report

GINA M. HAYDEN, M.D. AND STEPHEN A. ATLAS, M.D.

Introduction

This case is illustrative of the complex life cycle of the *Strongyloides stercoralis* nematode, which includes an asymptomatic carrier phase and an autoinfection phase and how an asymptomatic infection can become symptomatic when a patient is treated with corticosteroids.

Case Presentation

A 64-year-old woman, a native of Nicaragua, was admitted to Greenwich Hospital in March 1994 complaining of one day of bloodless watery diarrhea, malaise, and vomiting associated with mild left lower quadrant pain and fever.

Her medical history included an admission two years previously for several episodes of bloody diarrhea, diffuse lower abdominal pain, and fever. She was given intravenous ciprofloxacin empirically while awaiting the results of tests. The work-up included stool cultures, *C. difficile* toxin, ova and parasite examination of the stool, and stool Gram stain, all of which were negative. A flexible sigmoidoscopy revealed erythematous colonic mucosa, and biopsy showed mild inflammatory cell infiltrate but no acute colitis. She was diagnosed with possible inflammatory bowel disease, but improved quickly without specific therapy, and was discharged home.

One month prior to this admission she was diagnosed as having systemic lupus erythematosus and given prednisone, 15 mg per day, which decreased her joint pains. She also received acetominophen for her fever.

In Nicaragua she had been employed as a domestic worker in a rural area. Her last visit to Nicaragua had been 20 years ago.

Physical Examination and Laboratory Data

On physical examination she was mildly obese, sleepy but arousable. Her temperature was 37°C, respirations 16, pulse 100, and blood pressure 96/60. Abdominal examination revealed mild left lower quadrant pain on deep palpation. There were no skin rashes. An ultrasound examination of the abdomen showed a thickened wall of the descending colon. Stool Gram stain, guaiac, and cultures for enteric pathogens were all negative. Flexible sigmoidoscopy showed diverticuli, and biopsy showed a mild inflammatory infiltrate. White blood cell count was 14,000 with 25% eosinophils. Examination of the stool for parasites was positive for *Strongyloides stercoralis* larvae. She was treated with thiabendazol, 1.5 g by mouth twice daily for three days. She recovered rapidly, with no recurrence.

Etiology.—Strongyloidiasis is caused by *Strongyloides stercoralis,* a nematode worm that has as two forms, one parasitic and the other free living. There are three developmental forms: adult, rhabditiform larva, and filariform (infective) larva. There are two life-cycles in which reproduction takes place: an internal sexual cycle involving parasitic worms and an external sexual cycle involving free-living worms in the soil. *Strongyloides stercoralis* has a worldwide distribution in the tropics and subtropics. It is highly prevalent in parts of tropical South America and South-East Asia, and endemic in the Southern United States. In temperate climates it is not uncommon in conditions where crowding exists, such as in mental institutions, prisons, and in mentally retarded citizen group

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homes. It has become a problem in individuals receiving immunosuppressive treatment, such as in patients receiving steroid medication for inflammatory diseases or in transplant recipients.[1]

Clinical Pathology.—The pathogenic effects begin with the entry of the infective larvae into the skin, usually though the feet from contaminated soil. The ensuing rash is called cutaneous larvae currens. The filariform larvae cause petechial hemorrhages at the site of invasion accompanied by intense pruritis, congestion, and edema. The larvae migrate into cutaneous blood vessels and are carried to the lungs. In the lungs they enter the alveoli and pass up the respiratory tree where they may be delayed by the host defense response, become adults, and invade the bronchial epithelium. Passing through the lungs the young worms may cause symptoms resembling those of bronchopneumonia with some lobular consolidation.

When they have become lodged in crypts of the intestine the females mature and invade the tissues of the bowel wall but rarely penetrate the muscularis mucosa, and move in tissue channels beneath the villi, where the eggs are deposited. The eggs hatch, and first stage larvae work towards the lumen of the bowel and are passed out in the feces.

Under suitable conditions the external sexual cycle may be omitted and the filariform larvae infect the definitive host via the skin or buccal mucosa, as is true of *Necator* or *Ancylostoma*. This is the autoinfection cycle which is peculiar to *Strongyloides* and the other two organisms. If autoinfection occurs, the filariform larvae enter the perianal skin and cause a locally recurrent rash. Autoinfection leads to an increase in worm population which can maintain itself in the absence of recurrent infections from an external source, and may result in the intermittent recurrence of symptomatic episodes.

In heavy infestations, the first stage larvae, instead of passing out in the feces, develop in the bowel, bore into the wall of the duodenum and jejunum, and develop to the adult stage, producing ova while encysted in the bowel. From the bowel they spread throughout the lymphatic system to the mesenteric lymph nodes and can enter the general circulation and be found in the liver, lungs, and kidneys. The ileum, appendix, and colon are sites of reinvasion and here the worms cause granulomas with central necrotic areas often containing a degenerate larva. There have been reports of patients presenting with clinical syndromes suggestive of acute appendicitis during massive infections of *Strongyloides*.[2] The mesenteric glands may be similarly affected. The larvae may carry microorganisms and an overwhelming septicemia caused by *Escherichia coli* has been caused in this way.[3] In light infestations, intestinal biopsy has shown edema and cellular infiltration of the mucosa with partial villous atrophy. In the majority of cases of *Strongyloides* infections, a small population of adult worms may maintain itself in the bowel for as long as 30 years in the absence of any further infection from the outside.[1]

The laboratory findings include leukocytosis, eosinophilia, and *Strongyloides* on fecal exam.

Differential Diagnosis.—Strongyloidiasis must be differentiated from other tissue invading helminths: *Ascaris, Ancylostomia* and liver flukes. Disseminated strongyloidiasis may closely resemble tropical pulmonary eosinophilia, especially since serology cross reacts. Larvae currens resembles cutaneous larvae migrans caused by *Ascaris*, but in larva currens the rash is located mainly on the buttocks (occurring during auto infection), lasts only a few hours, and may occur intermittently for many years.

Diagnosis.—Only adults of rhabditiform larvae appear in the stools or duodenal drainage. They can be demonstrated by the formol ether method or cultured in charcoal at 26°C for a week. Serologically, there is considerable cross-reactivity with other helminths and filarias. The filarias complement fixation test is positive in 45% of larvae currens, but may be negative in massive infections. A sensitive ELISA test is also in use, but its specificity is not yet defined.

Treatment.—*Strongyloides* should be treated whether or not the infection is giving rise to symptoms. It should be looked for and treated especially in immunosuppressed hosts. Both thiabendazole and mebendazole are effective. The dose of thiabendazole is 25 mg/kg twice daily for three days. Mebendazole 100 mg three times a day for seven days is moderately effective, but therapy for two to four weeks is necessary for complete cure.

Control.—Control methods are the same as for hookworm: prevention of contact with the soil by wearing shoes and control of feces in endemic areas.

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Primary Lymphoproliferative Disorders of the Breast

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AND WILLIAM PASTUSZAK, M.D.

ABSTRACT—Primary breast lymphoproliferative disorders are rare lesions and include both the malignant lymphomas and the benign pseudolymphomas.

We reviewed 4,491 consecutive cases of breast cancer diagnosed and treated between 1973 and 1988. Patients with lymphoma in other sites and those with lymphomas limited to axillary nodes were excluded.

***Results.*—Five patients (0.11%) presented with primary lymphoreticular lesions, of which three were primary non-Hodgkin's lymphoma and two were pseudolymphomas. Patients were followed clinically through to the present time or until death occurred. Surgical procedures included incisional or excisional biopsy in four patients and modified radical mastectomy in one. Two patients received chemo-therapy and one received radiotherapy. One patient with pseudolymphoma subsequently developed infiltrating ductal carcinoma of the same breast. Three patients with primary breast non-Hodgkin's lymphoma died within the follow-up period, with a mean survival of 33 months.**

***Conclusions.*—We conclude that primary breast lymphoma is a rare and aggressive breast malignancy with a poor prognosis despite different treatment options.**

Introduction

PRIMARY lymphoreticular lesions of the breast are rare, constituting 0.04% to 0.53% of all breast tumors.[1-4] These include both the malignant lymphomas and the morphologically similar but clinically benign pseudolymphomas. Since lymphomas may uncommonly metastasize to the breast, a diagnosis of primary breast lymphoma is assigned to those patients with no previous history of lymphoma before the diagnostic breast biopsy. Patients with clinical evidence of lymphoma at other sites and those with lymphoma limited to axillary nodes are excluded.

Despite their rarity, it is important to recognize the natural history and treatment of these lesions, as they differ from other breast neoplasms. Moreover, the etiology of primary breast lymphomas may provide further insight into the pathophysiology of other extranodal lymphomas. We present our experience with five cases of primary breast lymphoreticular lesions.

Materials and Methods

We reviewed 4,491 consecutive cases of breast cancer diagnosed and treated at Hartford Hospital from 1973 to 1988. All pathology reports were reviewed from patient records, and this was supplemented by review of actual tissue sections. Five patients (0.11%) had a primary lymphoreticular lesion of the breast according to the following criteria: 1) no previous diagnosis of lymphoma; 2) no documented clinical evidence of lymphoma at other sites at the time of diagnosis; and 3) histologic evidence of mammary glandular parenchyma in the diagnostic breast biopsy. Patients with tumor limited to axillary lymph nodes were excluded. Mammography was performed on

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all patients prior to breast biopsy. The mammography results were obtained from official radiological reports in the hospital chart.

The five patients diagnosed with breast lymphoma were staged initially according to the Ann Arbor staging classification for lymphomas: Only stage I patients (involvement of breast alone) were considered. Staging evaluation was accomplished by physical examination, complete blood count, serum chemistries, bone marrow biopsy, and computed tomographic (CT) scan.

All patients were followed for at least 10 years or until death occurred. Clinical information, including all staging data, was obtained from hospital or office charts in five patients. One patient with pseudolymphoma subsequently relocated after the diagnostic biopsy, and follow-up was obtained by telephone conversation.

Results

Patient characteristics.—All patients were female and ranged in age from 46 to 76 years (mean, 60 years). There was no family history of lymphoma in any patient, although four patients did have a first-degree relative with breast cancer.

Two patients had undergone previous breast surgery. One had had bilateral breast biopsies seven years previously, with pathological study revealing a right intraductal papilloma and left breast fibrosis. She subsequently presented with a new left breast mass. The second patient had had a previous diagnosis of atypical lymphoid infiltrate in her left breast by excisional biopsy. She presented 18 months later with pruritus over the previous biopsy site.

Five patients presented with an abnormal breast mass. No patient had systemic symptoms. One patient had an inconclusive mammogram, while four patients had nodular or infiltrative abnormalities by mammography. The left breast was involved in three cases, and the right breast in two cases.

Diagnosis.—Diagnosis was established by excisional biopsy in three patients and incisional biopsy in one patient. An incisional biopsy with frozen sections revealing malignancy was performed on one patient, and an immediate modified radical mastectomy was carried out.

Pathology and staging.— Three patients were diagnosed with non-Hodgkin's lymphoma (NHL) of the breast, and two patients were diagnosed with pseudolymphoma. Immunofluorescence studies of tissues diagnosed as con-

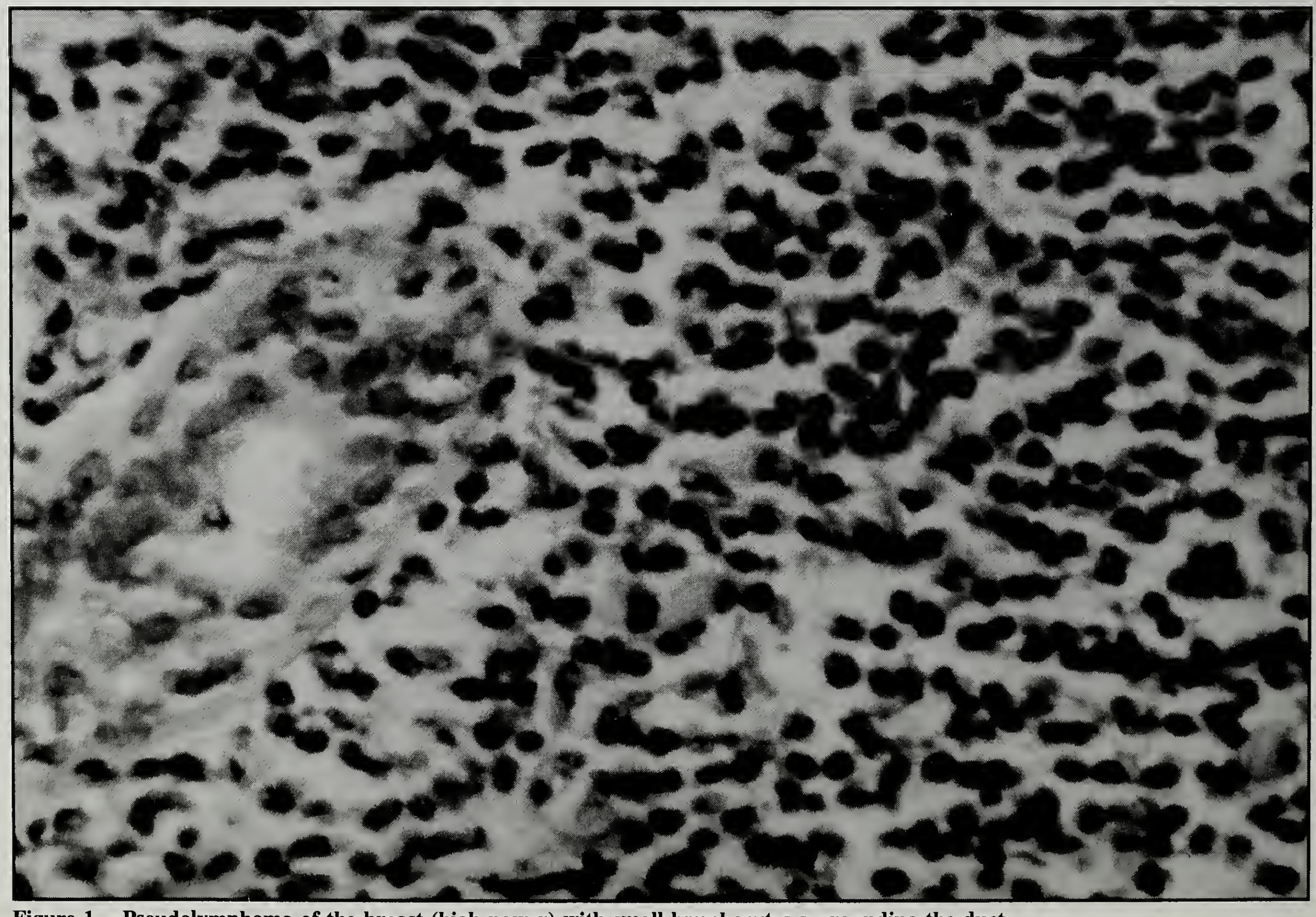

Figure 1.—Pseudolymphoma of the breast (high power) with small lymphocytes surrounding the duct.

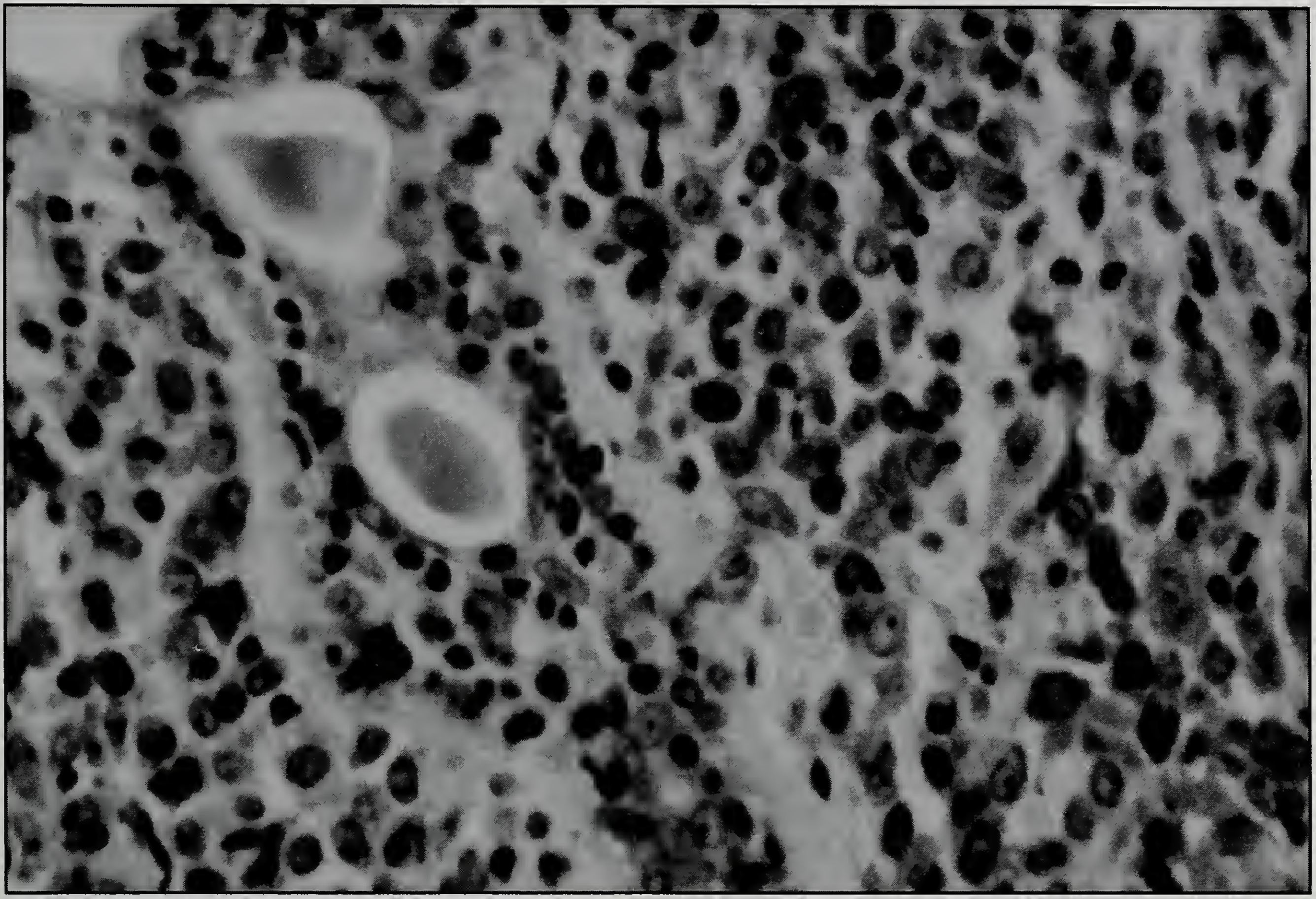

Figure 2.—Large-cell lymphoma of the breast (high power).

taining pseudolymphoma were positive for polyclonal gammopathy in one patient and were negative in the second patient (Fig. 1). Histological classification of the non-Hodgkin's lymphomas by the Rappaport classification revealed one case of diffuse histiocytic lymphoma, one case of nodular and diffuse histiocytic lymphoma, and one case of nodular lymphocytic lymphoma. In the working formulation, these corresponded to diffuse large-cell type; follicular and diffuse large-cell type; and follicular, small cleaved-cell, respectively (Fig. 2). Tissue immunofluorescence studies revealed an IgM λ chain gammopathy in the three patients diagnosed with malignant lymphoma.

Treatment and follow-up.—Both patients diagnosed with pseudolymphoma were treated by excisional biopsy. In addition, postoperative radiation therapy (1500 cGy) was administered to one patient.

Of the patients diagnosed with NHL of the breast, two were treated with chemotherapy following the initial breast biopsy. One patient had an immediate modified radical mastectomy following biopsy, and she subsequently refused any further treatment. No patient was treated by radiation therapy.

The chemotherapeutic regimens consisted of four cycles of cyclophosphamide, vincristine, and prednisone (COP) in the patient with follicular, small cleaved-cell type of NHL. The patient diagnosed with diffuse large-cell NHL was treated with six cycles of cyclophosphamide, doxorubicin, vincristine, and prednisone (CHOP).

The mean follow-up time for all patients (from diagnosis to death due to any cause, or date of the most recent follow-up) was six years and one month, with a range of 19 months to 12 years and two months.

Both patients with pseudolymphoma are still alive at 10 years and 12 years and two months after diagnosis. The one patient who received postoperative radiation treatment developed an ipsilateral infiltrating ductal carcinoma five years later. She subsequently underwent modified radical mastectomy and is presently disease-free.

The patients initially presenting with stage I NHL of the breast died of disseminated disease, with a mean survival time of 33 months (range, 19-43 months). Sites of metastasis included the contralateral breast, gastrointestinal tract, liver, and bone marrow. A summary of treatment modalities and survival is given in Table 1.

Discussion

Extensive lymphoid infiltration may occur in the breast as either a pseudolymphoma or a malignant lymphoma. Pseudolymphoma of the breast was first described in 1966 by Oberman, who postulated that it may represent an exaggerated local response by the indigenous breast lymphoid tissue.[1,6] In 1980, Lin et al reported on a series of five patients with pseudolymphoma and, based on a follow-up of two to eight years, concluded that this was a benign lesion. Moreover, they reaffirmed Oberman's hypothesis that pseudolymphomas may represent an overwhelming local response to injury and that a polyclonal IgG gammopathy, which may represent stimulated lymphoid cells, may occur.[1]

Morphologically the pseudolymphomas may resemble malignant lymphomas, with extensive lymphoid aggregates and germinal centers. Further complicating this differentiation is a polyclonal gammopathy, which occurred in one of our patients with pseudolymphoma. However, the differentiation is an important one. Based on Lin's and our own series, pseudolymphoma is a benign disease which may be treated by simple excision alone.[7] It should be emphasized that unnecessary radiation therapy may predispose some of these patients to a future intraductal carcinoma.[8] One patient in our series with a family history of cancer did develop an ipsilateral carcinoma five years after radiation, although it is unlikely that the 1500 cGy dose was responsible.

Malignant lymphoma may present primarily in the breast as a breast nodule, and the diagnosis is seldom made without biopsy. Bilateral breast lymphomas have been reported. Malignant lymphomas represent only .04-.05% of malignant breast masses.[9] Xeromammography may reveal a nonspecific, well-circumscribed mass without tumor calcification, making the radiologic differentiation from carcinoma virtually impossible.[10] Pathologically, they differ little from the more common lymphomas arising from nodal tissue, with the histological classification based on the morphology (Fig. 2). However, several features may distinguish these tumors from the nodal lymphomas. Immunophenotypic studies reveal that these extranodal lymphomas may express monotypic immunoglobulin, but lack CD5 and CD10 antigens in contrast to the nodal low-grade lymphomas. Moreover, they may have reactive follicles and infiltration of the epithelium by lymphocytes.[11] Therefore, careful morphologic and immunophenotypic studies may help distinguish primary extranodal breast lymphomas from those nodal lymphomas metastasizing to an extranodal site.

Although the exact etiology of mammary lymphomas has not been delineated, several theories propose that these may involve the normal, albeit scant, mucosa-associated lymphoid tissue (MALT) of the breast. Isaacson has described MALT lymphomas arising from those organs possessing mucosa-associated lymphoid tissue, since nodal B cells may migrate to these mucosal sites, including the gastrointestinal tract and breast.[12] In their series of eight patients with primary breast lymphoma, Lamovec and Jancar proposed that these may be MALT lymphomas and described several unique characteristics of these lesions, including their frequent dissemination to another MALT area before or without nodal metastasis.[2] This is consistent with our own series, in that two patients did have metastasis to the contralateral breast and gastrointestinal tract. Others have noted the propensity of MALT lymphomas to arise in tissues such as the breast and stomach, where there is scant or even no lymphoid tissue. In particular, Harris has postulated that these lymphomas may have an afffinity not for mucosal lymphoid tissue, but rather for glandular epithelium.[11]

More recently, the concept that these tumors are MALT lymphomas has been challenged.[13-15] In a series of seven patients with NHL of the breast, Jeon et al reported that no patient displayed the characteristic immunologic monotypia and monocytoid features usually associated with MALT tumors.[13] However, their findings of a predominance of diffuse large-cell lymphomas with the B cell as origin are similar to our own.

Table 1.—Pseudolymphoma and Malignant Lymphoma: Treatment Modalities and Survival

Pathology	***Treatment***	***Survival***
Pseudolymphoma	Excisional biopsy	10 yrs—alive
Pseudolymphoma	Excisional biopsy + radiation	12 yrs, 2 mos—alive
NHL diffuse large-cell	Excisional biopsy + chemotherapy	37 mos—dead
NHL, follicular and diffuse, large-cell	Modified radical mastectomy	19 mos—dead
NHL, follicular, small cleaved-cell	Incisional biopsy + chemotherapy	43 mos—dead

NHL = Non-Hodgkin's lymphoma

Several series, including combined data, have reported five-year survival rates as high as 60% to 85% for primary breast lymphoma, with treatment regimens incorporating systemic chemotherapy and/or radiation therapy.[16-18] Since systemic rather than surgical therapy is the current approach, performing a mastectomy based on a frozen section is a potential pitfall of not considering lymphoma in the differential diagnosis. Recognizing that our data are too small to provide meaningful five-year survival rates, we note in our series that no patients with mammary lymphoma are alive after five years. However, unlike other series with higher survival rates, no patient in our report received radiation therapy, and one patient refused chemotherapy.

Conclusions

Primary breast lymphoma is rare and in our experience the prognosis is poor. At the same time pseudolymphoma should be considered and unnecessary aggressive surgery avoided in this condition which is benign.

As noted previously, physical examination revealed palpable breast masses in five patients with primary breast lymphomas. Although these tumors may have a softer consistency than adenocarcinomas, it is impossible to distinguish a mammary lymphoma from other breast tumors on this basis. On gross pathologic sectioning, breast lymphomas may display a slight yellow color, in contrast to the grayish-white appearance of adenocarcinomas. Because of these subtle gross differences, the diagnosis is ultimately made by histologic and morphologic examination, with final differentiation based on phenotypic and genotypic studies.

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On-Site Adequacy Assessments for Image-directed Fine Needle Aspirations: A Study of 341 Cases

MARY F. LACHMAN, M.D., KAREN CELLURA, B.S., KEVIN SCHOFIELD, B.S.,
AND ABANTIKA MITRA, PH.D.

ABSTRACT—On-site adequacy assessments (OSAA) are reported to decrease the unsatisfactory and nondiagnostic rates of fine needle aspirations (FNAs). These have been routine in many institutions but were only recently introduced to our large teaching hospital. The results of FNAs performed in diagnostic radiology between January to December 1992 were compared to aspirations done by the same clinical staff during the first year (1993) after the addition of an on-site adequacy assessment service.

In the year prior to OSAA, 154 FNAs were performed in diagnostic radiology and the material obtained was processed by a cytotechnologist. Of these, 89 (58%) cases were positive for malignant cells. Approximately half of these cases had confirmatory tissue biopsies processed in the surgical pathology department of our institution. The remaining 65 (42%) of cytology specimens were determined to be negative or nondiagnostic for malignancy. These cases either had no tissue follow-up or the tissue obtained was nondiagnostic. Before beginning OSAA, nine cases (6%) were interpreted as negative for malignancy, but subsequent tissue biopsies were malignant. There were no false positives during this time. Diagnostic sensitivity was 86% before OSAA.

One hundred seventy-seven imaged directed FNAs were performed in the first year following the establishment of OSAA. Of these, 102 (58%) cases were interpreted as positive for malignant cells. About half of these patients went on to have confirmative tissue biopsies. Fifty-six (32%) cases were interpreted as negative for malignancy or nondiagnostic on FNA and follow-up tissue biopsies were also either negative or nondiagnostic. The false negative rate was 1% after OSAA and there were no false positives during this period. Diagnostic sensitivity was 98% after OSAA. In addition, the average overall number of passes per patient have decreased from 2.4 before OSAA to 1.6 after OSAA.

Introduction

IN the United States, the aspiration of lesions in deep visceral organs is often performed by radiologists. The quality of the aspirate is important, but in addition, proper sample preparation is essential to permit optimal cytologic interpretation. Microscopic assessments of the aspirate sample are performed by cytopathology personnel in the radiology suite of some hospitals in order to make a preliminary judgement on the adequacy of the specimen.[1] The current study was undertaken in our institution to evaluate the impact of rapid on-site assessments on diagnostic accuracy.

Materials and Methods

All image directed, cytotechnologist assisted FNAs of chest, retroperitoneum, soft tissues, bone, liver, and pancreas from 1992 and 1993 were retrospectively reviewed. The cytologic diagnoses in the year prior to OSAA (1992)

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Table 1.—Image-directed FNA-Cases Per Organ Site

	1992 (before OSAA)	*1993 (after OSAA)*
Lung/chest	56	79
Liver/pancreas	40	39
Retroperitoneum	17	9
Soft tissue/bone	41	50
Total	154	177

were compared to the results obtained one year following the implementation of the procedure (1993). During the first three months of OSAA the number of slides prepared per case and number of passes performed per case from each organ site were compared to the same data before OSAA were begun. In all cases the cytologic diagnoses were compared to the concurrent or subsequent tissue diagnoses when available.

The results were categorized as true positive, true negative, false positive, and false negative utilizing the definitions outlined by Zarbo et al.[2] Diagnostic accuracy was assessed before and after OSAA using the parameters of sensitivity, specificity, positive predictive value, negative predictive value, and efficiency with standard formulas.

The cytotechnologists were utilized to determine adequacy. The following guidelines were used as a reference points for the adequacy interpretations by the cytotechnologists, and were also agreed to by the radiologists

1. If malignancy was suspected clinically and malignant cells were present, the specimen was adequate and no further passes were necessary.
2. If malignancy was suspected clinically and no malignant cells were present on the smear, the specimen was not adequate. Additional passes were to be suggested.
3. If malignancy was not suspected clinically and no malignant cells were present, but cells representative of the organ aspirated were present, then the specimen was considered adequate.

Results

In the year prior to beginning OSAA, 154 image directed FNA were performed. These included 56 lung or chest specimens, 40 liver or pancreas aspirates, 41 from soft tissue or bone, and 17 retroperitoneal aspirations. In the first year after OSAA were established 177 FNA were performed. Seventy-nine of these were from the lung/chest, 39 from the liver/pancreas, 50 from soft tissue or bone, and nine from the retroperitoneum (Table 1). Concurrent or follow-up tissue biopsies were obtained in approximately 50% of all the cases which were initially interpreted as positive for malignancy on cytologic examination. All of the tissue biopsies confirmed the cytologic diagnosis of malignancy. There were no false positive cytologic interpretations either before or after OSAA (Table 2). In addition, all of the cytologic material obtained both before and after was considered adequate for interpretation.

Prior to OSAA, five (3%) FNA were interpreted as suspicious for malignancy. In the year after OSAA were begun seven (4%) FNA were interpreted as suspicious for malignancy. All of these specimens had a malignancy confirmed on tissue biopsy.

Eight cases (5%) were categorized as false negative because the cytologies were interpreted as negative for malignancy prior to OSAA and subsequent biopsies demonstrated malignant cells. Among the eight cases there were three cases in which the first FNA was negative, but the subsequent biopsy and repeat FNA revealed malignant cells. In three of the eight cases, the FNA cytology was interpreted as negative and a subsequent tissue biopsy revealed a malignant tumor. In the last two of the eight cases, one tissue biopsy revealed a soft tissue sarcoma and in the other a retroperitoneal lymphoma. Review of the cytology specimens from these patients failed to demonstrate cells diagnostic of malignancy and the false negatives were noted to be the result of sampling error.

Following the adoption of OSAA, two cases (1%) were categorized as false negatives because the FNA specimen was interpreted as negative for malignancy and subsequent tissue biopsies or repeat cytology revealed diagnostic material. In one situation the subsequent tissue biopsy of lung demonstrated a lymphoma, in another case the

Table 2.—Diagnostic Accuracy—All Organ Sites—Before and After OSAA

	True positive FNA/ True positive biopsy (True positive)	*True negative FNA/ True negative biopsy (True negative)*	*False positive FNA/ True negative biopsy (False positive)*	*False negative FNA/ True positive biopsy (False negative)*
Before	49	17	0	8
After	46	4	0	2
Overall	95	21	0	10

Table 3.—Diagnostic Accuracy of Cytopathology in Image-directed FNA

	Before OSAA	*After OSAA*	*Overall*
Sensitivity	86%	98%	90%
Specificity	100%	100%	100%
Predictive value of positive test	100%	100%	100%
Predictive value of negative test	67%	67%	68%
Efficiency	89%	96%	92%

initial aspirate was negative for malignant cells and a repeat aspirate was interpreted to show adenocarcinoma of the lung. When the original cytology slides from these two cases were reviewed, no diagnostic cells were identified.

Diagnostic accuracy before OSAA, after OSAA, and the combined percentages were calculated (Table 3). Sensitivity of cytologic diagnosis was improved following the implementation of OSAA, from 86% to 98%. False positive diagnoses were unchanged at 0% before and after OSAA and suspicious diagnoses were made in 3% of the cases before OSAA and 4% of the cases after OSAA. Documentation of specimen adequacy was indicated in a section on the requisition form.

The number of slides screened and the number of FNA passes per case and organ site were tabulated for the first three months of OSAA (Table 4). There was a decrease in average number of slides evaluated and passes performed in each organ site after implementation of OSAA, except for FNAs of the liver and pancreas.

Discussion

Our laboratory processes 600 fine needle aspirations annually. Of these, clinicians require assistance to prepare FNA smears in approximately 250 cases. About 80% of these 250 specimens are FNA biopsies obtained in diagnostic radiology following ultrasonic, fluoroscopic, or computerized tomographic imaging. The targets of the aspirations included lesions in the retroperitoneum, adrenal glands, lung, mediastinum, pelvic soft tissues, lymph nodes, bone, liver, and pancreas. Radiologists performed 154 aspirations from these sites in the year before the OSAA were begun, and 177 aspirations in the first year following adoption of the new procedure.

On-site adequacy assessments for FNA performed in diagnostic radiology were begun at Yale-New Haven Hospital in December 1992. For this procedure, the cytotechnologist travels to the procedure suite with a microscope and staining set-up on a wheeled cart. When the radiologist aspirates cellular material from the imaged lesion, the cytotechnologist makes smears, stains them using a quick hematoxylin-eosin technique, and evaluates them under the microscope for diagnostic cells. The entire cytopathology procedure takes approximately eight minutes to perform. If the material obtained is inadequate, the cytotechnologist requests an additional FNA pass. Documentation of specimen adequacy was indicated in a section on the requistion form.

In contrast, prior to the establishment of this on-site procedure, the radiologist would routinely make at least two FNA passes, whether or not it was necessary. The cytotechnologists would attend the procedure, make smears, and then return to the laboratory to stain and screen the slides. The pathologist would be notified,

Table 4.—On-site Adequacy Assessments for Image-directed FNA: Laboratory Impact One Year Before and During the First Three Months of Implementation

Before	***Average number slides per case (Total)***		***Number passes per case***
Lung	6.9	(242/25)	2.4
Liver/pancreas	11.0	(411/40)	2.5
Retroperitoneum	9.6	(221/23)	2.4
Soft tissue/bone	8.6	(372/43)	2.1
Overall	9.5		2.4
After	***Average number slides per case (Total)***		***Number passes per case***
Lung	6.3	(88/14)	1.6
Liver/pancreas	14.0	(84/6)	3.5
Retroperitoneum	8.1	(65/8)	2.0
Soft tissue/bone	6.9	(69/10)	1.7
Overall	6.4		1.6

review the slides, render a diagnosis, and phone the radiologist. This procedure could easily take 30 minutes, although usually it was longer, from the time the aspirate was performed until a phone call was made with a diagnosis or merely a statement of adequacy. In this system, if the material was insufficient or nondiagnostic, it could mean that the patient would need to return to the procedure room. The patient would be rescanned, reexposed to ionizing radiation, reaspirated, and the cytotechnologists would again be called to assist in specimen preparation.

To our knowledge this study represents the largest comparative study of the diagnostic accuracy of FNA before and after the institution of on-site adequacy assessments for fine needle aspirations under ultrasonic, fluoroscopic, and computerized tomographic guidance.

Civardi and coworkers evaluated the value of rapid assessments in a series of 160 ultrasonically guided FNA biopsies from liver, pancreas, abdomen, kidneys, lung, thyroid, and retroperitoneum.[3] Their total series had a sensitivity of 95.6%, a specificity of 100%, and overall accuracy of 97.3%.

Pak and colleagues used a quick staining and rapid interpretation technique on 37 of 52 transthoracic FNAs obtained under fluoroscopic guidance and found a 97% accuracy rate which was compared to 86% accuracy for 15 cases which were reviewed which did not have rapid evaluations.[4] Twelve of the 37 patients required more than one aspiration to obtain adequate material. Nine required two aspirations and three others required three or four aspirations. The remaining 13 of 37 cases had one aspiration each. The 15 cases without rapid evaluation had one aspiration each.

In an analysis of interinstitutional lung FNA cytology, Zarbo and Fenoglio-Preiser evaluated 5,264 satisfactory aspirates which had histologic correlation for diagnostic accuracy.[2] In the diagnosis of pulmonary lesions by FNA cytology this study showed a diagnostic sensitivity of 89%, 96% specificity, 99% positive predictive value, 70% negative predictive value, and 91% efficiency. The false positive rate study was 0.8% and the false negative rate was 8%.

In the present study there was a 0% false positive rate both before and after OSAA were established. The false negative rate was 6% before OSAA and 1% in the year following. The sensitivity of 86% before OSAA and 98% after OSAA, 100% specificity and positive predictive value, 89%, and 96% efficiency compare favorably to the values reported by Zarbo et al[2] in their evaluation of lung FNA cytology.

We attribute the improved sensitivity and efficiency of diagnosis following OSAA primarily to the on-site presence of the cytotechnologist while the aspirates are being performed. The cytotechnologist can have an effect on quality by encouraging additional FNA passès when the cellular material obtained in the initial pass is suboptimal or nondiagnostic. The procedure has resulted in a decrease in the average number of slides screened by cytotechnologists and although antecdotal, there have also been fewer patients with pneumothorax as a result of FNA biopsies of lung following OSAA than prior to OSAA, a finding Johnsrude and colleagues reported.[5] The use of cytotechnologists for adequacy assessments is somewhat controversial. Some pathologists believe that only physicians should direct the activities of other physicians. However, given the high quality of licensed cytotechnologists, the relative "cytopathology immaturity" of some pathology housestaff, and the lack of sufficient attending pathologists to cover the radiology demands, the service described here has been well accepted at this institution and provides a useful service to patients and physicians alike.

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Unintentional Carbon Monoxide Poisonings in Residential Settings—Connecticut, November 1993-March 1994

CARBON monoxide (CO) gas is an environmental hazard, and unintentional CO poisonings have occurred in multiple settings, including residences, motor vehicles, and workplaces. In 1993, exposure to CO produced by a malfunctioning natural gas furnace in a Suffield, Connecticut, home resulted in the deaths of three children and hospitalization of four other family members. Publicity resulting from this and other CO poisoning incidents prompted concern that gas furnaces have been a primary cause of residential CO poisonings in Connecticut. To determine the sources of residential CO poisonings in Connecticut, the Connecticut Department of Public Health (CDPH) surveyed persons with cases of CO poisoning during November 1993-March 1994. This report presents the survey findings.

CDPH reviewed the daily telephone logs of the Connecticut Poison Control Center (CPCC) to identify potential nonfatal CO poisonings during November 1993-March 1994. To determine whether potential cases met the case definition for a CO poisoning and whether the source of CO was residential, nurses from the CPCC collected additional details about poisonings through telephone interviews. A case was defined as two or more symptoms consistent with CO poisoning (ie, headache, nausea, diarrhea, dizziness, dry mouth, drowsiness, or vomiting) or CO poisoning diagnosed by a physician and a carboxyhemoglobin (COHb) level >10% (normal concentration: <2% for nonsmokers, 5%-9% for smokers). A 32-item questionnaire was administered by CDPH to one adult respondent in each household to obtain information about demographics and socioeconomic status for each person in the household with CO poisoning, as well as information about symptoms, potential CO sources, details of the investigation and remediation of CO in the home, and the respondent's knowledge of CO poisoning before the incident.

A total of 197 records of potential nonfatal CO poisonings were identified; of these, 139 (71%) contained both the name and telephone number of persons with potential cases. Overall, 61 (44%) persons could be contacted, and 51 (84%) were considered to have had CO poisoning resulting from exposure to a residential source of CO. These 51 persons ranged in age from one to 71 years (median: 32 years); most (83%) were aged 20-49 years. Persons with CO poisoning resided in 36 households: 19 (53%) single-family dwellings, 11 (31%) multifamily dwellings, four (11%) apartments, and two (6%) dwellings classified as other.

The most common source of CO in these 36 homes was heating systems: oil heating systems (16 households), gas heating systems (11), and kerosene heaters (three). Gas appliances and fireplaces were identified as the CO source in six households.

Reported symptoms for the 51 patients included headache (88%), dizziness (83%), nausea (75%), drowsiness (75%), dry mouth (44%), diarrhea (17%), and vomiting (11%). For 28 (55%) patients, the first symptom noted was headache; for eight (16%), dizziness; for seven (13%), nausea; for five (10%), dry mouth; and for three (6%), drowsiness. Twenty-two (43%) patients consulted a physician. Of the 33 patients who suspected they were experiencing CO poisoning, 10 (30%) became concerned because of information obtained previously from television news media; eight (24%), because of prior knowledge of CO poisoning; eight (24%), because of information previously learned from others; four (12%), because of an odor

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from a malfunctioning appliance; two (6%), because of a CO detector; and one (4%), because of some other reason. For 32 cases, data were available about the interval between onset of symptoms and the time at which the patient first considered CO as the cause of symptoms: for 10 (31%), the interval was <1 hour; for three (9%), one to 12 hours; for five (16%), 24.1 hours to four days; for one (3%), 4.1 to seven days; and for 13 (41%), greater than seven days.

The 36 respondents also were asked about possible methods to prevent CO exposure: 22 (61%) provided one method, eight (22%) provided two, and one (3%) provided three; five (14%) were unable to list any method. Prevention methods included appropriate maintenance of appliances (16), use of a CO detector (14), proper ventilation of the room (five), public education (three), and other actions (three).

Sources of CO were identified primarily by heating-system technicians (48%) or a resident (38%). Sources also were identified by fire department personnel (10%) or building officials (3%). Methods of identification were visual inspection of the furnace or heating system (63%), process of elimination (18%), CO meters (11%), and other (7%). Actions taken to correct the CO emissions included replacing the furnace; ventilating the room; and/or cleaning, repairing, or discontinuing use of the malfunctioning appliance.

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Editorial Note: Unintentional CO poisonings result in approximately 600 deaths annually in the United States.[1] A surveillance system implemented by the Colorado Department of Health in 1985 has helped to characterize the epidemiology of fatal and nonfatal CO poisonings.[2] Findings from this system indicate that, during 1986-1991, the primary sources of 1,149 CO poisonings in Colorado were furnaces in residential settings (40%), automobile exhaust (24%), and fires (12%). Furnaces were the source of CO in 46% of nonfatal CO poisonings but only 10% of fatal poisonings, suggesting that the primary sources of CO associated with nonfatal poisonings differ from those for fatal cases. In addition, findings from the Colorado surveillance system indicate that mortality data may underestimate the importance of furnaces as a source of CO in residential settings.

Other studies also have documented that furnaces are important sources of CO in residential CO poisonings. For example, of the 38 residential CO-related episodes investigated in West Virginia during 1978-1984, furnaces or space heaters were implicated in most (89%) incidents[3]; 94% of the faulty units were fueled by methane or butane. In Connecticut, although most (75%) CO poisonings were caused by faulty furnaces, oil-fueled furnaces were the source of CO more often than natural gas—possibly reflecting a higher percentage of oil- or kerosene-fueled furnaces in homes in New England (51% in homes in New England compared with 6% in the Midwest,7% in the South, and 2% in the West).[4] In addition, based on the 1990 census, the distribution of furnace types identified as sources of CO in this survey is representative of the distribution throughout Connecticut (gas furnaces, 28%, and oil or kerosene furnaces, 54%).[4]

CDPH is using the findings in this report to educate the public about sources of CO and strategies to prevent CO poisoning. Prevention of CO poisoning requires that 1) homeowners and renters recognize that all combustion appliances must be professionally installed to ensure both complete combustion of the fuel and adequate ventilation of combustion products[4]; 2) combustion appliances be maintained and inspected annually; 3) fuels not be burned in confined spaces (eg, tightly closed rooms); 4) public education efforts highlight the early manifestations of CO intoxication; 5) homeowners and renters be informed about the availability of low-cost CO detectors and public health agencies document the effectiveness of these devices; and 6) health-care providers—particularly emergency department personnel— consider the possibility of poisoning from residential exposure to CO in patients reporting typical symptoms (eg, headache, nausea, vomiting, and malaise). Additional information about CO detectors is available from the Consumer Product Safety Commission hotline (800) 638-2772 or (301) 504-0220.

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The Use of Angiotensin Converting Enzyme Inhibitors in Asymptomatic Patients with Left Ventricular Dysfunction After Myocardial Infarction

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Introduction

CORONARY artery disease is the leading cause of cardiovascular death in the United States.[1,2] Indeed, of the 1.5 million Americans who experienced acute myocardial infarction (AMI) in 1991, more than one-half million died.[3] Complications associated with AMI are ventricular tachycardias, cardiogenic shock, sudden death (cardiac arrest), reinfarction and heart failure. Survivors of AMI are at increased risk of such complications.[4,5]

Heart failure is an important complication seen in patients after myocardial infarction. It is a debilitating clinical condition affecting close to four million patients in the United States and is associated with significant mortality.[6,7] Ventricular damage during an AMI or reinfarction triggers the ventricular remodeling process characterized by early infarct expansion, which is followed by myocyte hypertrophy and changes in the interstitium.[8-15] The later stage of the process involves ventricular dilation, which is an independent risk factor for the development of congestive heart failure.[16] Following myocardial infarction, 14% and 22% of patients develop heart failure five and 10 years later, respectively.[17] Clinical[18-25] and animal trials[26-31] have demonstrated the efficacy of angiotensin-converting enzyme (ACE) inhibitors in preventing the remodeling process. Decision to initiate ACE inhibitor therapy in postmyocardial infarction patients with asymptomatic left ventricular (LV) dysfunction is important because of the potential for reducing the overall mortality from heart failure.

Overview of the Remodeling Process

Within 15 to 20 minutes of an AMI, myocardial stunning caused by reversible myocyte dysfunction occurs. During this time, myocardial contractility remains dysfunctional for an extended period after reperfusion.[5,32] Acute reperfusion limits infarct size, prevents further necrosis, and preserves left ventricular function.[32] Without reperfusion, necrosis progresses resulting in a decrease in myocardial tissue viability and increased wall stress in adjacent tissues leading to an akinetic or dyskinetic left ventricle.[33,34] The early phase of ventricular remodeling occurs within the first hour to days after AMI. It is characterized initially by infarct expansion triggered by myocyte necrosis resulting in increased workload on the remaining viable myocardium. Infarct expansion continues for one to two days after infarction, and further infarct expansion dilates the infarcted segment and increases the fraction of left ventricular surface occupied by the necrotic myocardium.[15,35-37] It occurs in 30% to 40% of patients with anterior transmural infarction and significantly increases early mortality (four to eight weeks after MI).[17,35] The resulting volume overload contributes to acute ventricular dilation and wall thinning.[8-10]

During the early period of AMI, elevated left ventricular volume may restore contractile function and maintain stroke volume with increased ventricular filling pressures.[33,34,37] But later, a vicious cycle of increased ventricular filling pressure, systolic wall tension, and ventricular enlargement develops leading to heart failure.[38] Increased

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Table 1.—Summary of Large-Scale Trials with ACE Inhibitors After Myocardial Infarction

Reference	***Study Design***	***Results***
SMILE study (1995)[25]	Multicenter, randomized placebo-controlled; begun within 24 hours of MI, continued for six weeks 1,556 patients with anterior wall MI; no thrombolytic treatment; CT allowed Zofenopril (Z)-7.5mg po initially, titrated to 30mg b.i.d. p.o. as tolerated or placebo (P)	*Severe CHF:* 4.1% in P *vs* 2.2% in Z (*P*=.018) *Death:* 6.5% in P *vs* 4.9% in Z (*P*=0.19) *Combined end-point:* 10.6% in P *vs* 7.1% in Z (*P*=.018) *Mortality rate at one year:* 14.1% in P *vs* 10% in Z with a reduction in risk of 29% (*P*=.011)
SAVE Investigators (1991, 92)[23]	Multicenter, randomized, double-blind, placebo-controlled; study began three to 16 days post-MI; continuted 42±10 months 2,231 patients (mean age±SD: 59.4±10.6 years) Captopril (C) -6.25mg or 12.5mg p.o. initially, titrated to 25mg t.i.d. p.o. (for inpatients) and to 50mg t.i.d. p.o. (for outpatients) or P	*Ejection fraction:* Reduction in ejection fraction by >9% occurred less often with C than P (*P*=0.168) *Mortality:* All-cause mortality reduced 19% by C compared with P (*P*=0.19); death from a cardiac cause reduced 21% (*P*=.014) by C compared with P, death from heart failure reduced 36% (*P*=.032), and death from atherosclerosis reduced 23% (*P*=.009); sudden cardiac death or death from reinfarction or vascular disease slightly reduced by C (NS) *Morbidity:* Risk of heart failure requiring ACE inhibitors reduced 37% by C (*P*=.001 *vs* P) and heart failure requiring hospitalization reduced 22% (*P*=.019); reinfarction reduce 25% by C (*P*=.015)
CONSENSUS II study group (1992)[24]	Multicenter, randomized, double-blind, placebo-controlled; study begun within 24 hours of MI; continued 41 to 180 days (planned for six months but stopped early) 6,090 patients (mean age: 65.8 years) Enalapril (E) -1mg IV for one dose, then titrated to 20mg b.i.d. p.o. as tolerated or P	*Mortality:* Cumulative incidence of death increased with E (10.2%) compared with P (9.4%, NS); no difference in death from heart failure, sudden cardiac death, myocardial rupture, cerebrovascular events, or non-cardiac causes; mortality with E slightly higher for patients >70 years and slightly lower for patients <70 years (NS, compared with P) *Morbidity:* SBP <90 mmHg and DBP <50 mmHg occurred more frequently with E than P (*P*=.001); heart failure less likely to develop with E than with P (*P*=.012)

ACE = angiotensin-converting enzyme; C = captopril; CONSENSUS II = Cooperative New Scandinavian Enalapril Survival Study II; CT = conventional therapy; DBP = diastolic blood pressure; EF = ejection fraction; LVEDV = left ventricular end diastolic volume; LVESV = left ventricular end systolic volume; MI = myocardial infarction; NS = not statistically significant; P = placebo; PCWP = pulmonary capillary wedge pressure; SAVE = Survival and Ventricular Enlargement; SBP = systolic blood pressure; SMILE = Survival of Myocardial Infarction Long-Term Evaluation; Z = zofenopril wall stress and general ventricular dilatation occur several months after MI. They are part of the later phase of the ventricular remodeling. Infarction expansion is followed by scar formation and healing (several weeks to months after MI) which provides further resistance to stretching of the myocardium.[17] Neurohormonal changes during AMI include elevation of catecholamine levels and plasma renin activity, both of which are associated with increased postinfarction mortality.[39]

Efficacy of ACE Inhibitors After MI

Short-term trials evaluated captopril *vs* placebo in patients with either Q-wave MI[19] or both anterior and inferoposterior MI not treated with thrombolytics.[18] Significant beneficial effects of captopril were observed in preventing remodeling. However, these trials are limited by small sample size, and short-treatment periods. Two studies extended the treatment period to one year and similar effects were observed on remodeling,[20,21] but they were still limited by sample size. A pilot study of zofenopril has shown the drug to be effective in preventing ventricular remodeling.[22] Three major large scale trials have been published to date.[23-25] These trials evaluated zofenopril,[25] captopril,[23] and enalapril[24] after MI. Beneficial effects were only seen with zofenopril and captopril. Both late administration of captopril (three to 16 days after AMI) and early administration of zofenopril (24 hours after AMI) prevented remodeling and significantly decreased cardiovascular mortality. These findings were not seen with early administration of enalapril (24 hours after MI) (See Table 1). Since enalapril was administered early post-MI and the study was discontinued after 180 days, late administration of the drug (ie, three days after MI) and a longer follow-up period (ie, one year) may have shown different results.

Selection of ACE Inhibitors After MI:

It appears from the review of large clinical trials, that captopril is the only commercially available ACE inhibitor that has decreased overall cardiovascular mortality in asymptomatic patients after MI. Therefore, for survivors of myocardial infarction with asymptomatic LV dysfunction (ejection fraction less than 40%), captopril should be initiated within three to 16 days after MI at a test dose of 6.25mg. If hemodynamically tolerated, the test dose should be gradually titrated to 25mg t.i.d. p.o. at discharge and further increased to a target dose of 50mg t.i.d. p.o. after discharge. This target dose should be continued for at least one year. Currently, therapy with enalapril or any other commercially available ACE inhibitors has not been shown to be of similar benefit for after MI therapy in these asymptomatic patients.

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Danbury Hospital Antitrust Consent Decree Imposes Severe Restrictions on PHO/IPA Membership and Price Negotiation Practices: Harsh Guidelines for the Managed Care Contracting Minefield

STEPHEN E. RONAI , ESQ. AND H. KENNEDY HUDNER, ESQ.

THE Danbury Hospital physician health-care organization (PHO) will require significant restructuring and loss of bargaining power in the face of a proposed antitrust consent order filed on 13 September 1995 in Hartford Federal District Court.

This action was the first antitrust attack on a physician hospital organization in the country. (It is also the third significant antitrust investigation into Connecticut's health-care industry in the last four years. One of those resulted in a consent order against the Greater Bridgeport IPA's alleged group boycott of Physicians Health Services, Inc.) It was the result of a collaborative effort by the Department of Justice and the State of Connecticut Attorney General's Office. The consent order, which is scheduled to be approved on or after 13 November 1995, following a mandatory 60-day comment period, imposes far reaching and severe restrictions on the PHO's ability to function in its present form.

The consent order is a warning shot fired across the bow of every hospital and PHO in Connecticut. In his press release, Attorney General Richard Blumenthal said bluntly:

> I will not tolerate any monopoly activity that drives up the cost of health care in this state.... This consent decree, which will serve as a guideline for other hospitals throughout the state and country, sets down in detail the circumstances under which otherwise competing health-care providers may join together, and the circumstances under which they may not. Doctors and hospitals can join forces only in ways that create cost savings that ultimately benefit consumers.

Although of general interest to all hospitals and IPAs that participate as PHO members, the consent decree has special relevance for:

1. hospitals in isolated geographic regions of the state; and
2. any PHO or IPA which has a large percentage of the doctors in its market as its member providers.

The players involved in the consent order include:

Danbury Health Systems (Danbury Hospital's parent corporation or DHS); *Danbury Area IPA* (IPA); and

HealthCare Partners, Inc. (the PHO), which is the physician-hospital organization formed by the hospital and IPA.

In the lawsuit, the Justice Department and the attorney general charged that Danbury Hospital, the IPA, and PHO conspired to: 1) unlawfully fix prices; 2) reduce competition among doctors in the Danbury community; 3) forestall the growth of managed care plans in Danbury; and 4) act unlawfully to preserve their monopoly position by implementing a variety of exclusionary practices.

The PHO Achieved Bargaining Power Through the Size of Its Membership, Not Through the Services or Price Offered

The PHO had tremendous bargaining power over managed-care plans trying to enter into the Danbury market because its members included the only acute care hospital in the area, and 98% of the doctors on the hospital's medical staff. Significantly, the physician members of the PHO did not undertake any substantial financial risk and there was no attempt to achieve economic integration. The physicians remained unintegrated horizontal competitors

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in a marketplace where they had economic dominance. Additionally, the hospital had recently developed a "Medical Staff Development Plan" through which it could control the entry of new physicians into Danbury, thus insulating the PHO from outside competition. The hospital also tied the use of its inpatient services to the use of its outpatient services, effectively steering doctors and patients away from a competing outpatient surgery center. The Danbury Hospital scenario presented a case of a sole hospital and virtually all of the physicians in a discrete geographical area engaging in exclusionary policies concerning managed-care contracting.

The result of the hospital's exclusionary tactics and the PHO's large physician membership was to foreclose competition among health-care providers in Danbury. Health care buyers entering the Danbury market had little choice but to deal with the PHO on its terms.

Consent Order May Force PHO to Downsize or Dissolve

The net effect of the consent order is that the PHO will have either to (a) drastically reduce its size so that its membership is limited to no more than 30% of the physicians in the market (or 20% if it intends to be exclusive), (b) use a very strict form of the "Messenger Model" technique for negotiating fees with health-care buyers, or (c) cease operations and dissolve.

The consent order imposes a number of specific restrictions.

1. It enjoins the IPA and PHO from expressing views on or setting prices or other competitive terms, or from negotiating for competing physicians unless the PHO restructures itself to meet the definition of a "Qualified Managed Care Plan" (QMCP). This means that the PHO must reduce its physician membership to a level where it has no more than 30% of the physicians in the market (specifically focusing on primary care physicians, obstetricians and gynecologists, and pediatricians) and those providers must share substantial financial risk. As an alternative, the PHO can remain at its present size, but must negotiate prices with health-care buyers using a rigidly defined Messenger Model, under which each individual physician must independently negotiate with the buyer using a third-party "messenger." While the Messenger Model represents very little antitrust risk, it is extremely cumbersome and slow and effectively takes the PHO out of substantive negotiations regarding physicians fees.
2. The IPA, PHO, and hospital are enjoined from precluding or discouraging any physician from contracting with any payor, and from providing incentives for any physician to deal exclusively with the IPA, PHO, or any payor.
3. The IPA, PHO, and hospital cannot agree among themselves as to which of them will have the right to negotiate first with any payor.
4. The IPA, PHO, or hospital cannot disclose to any physician any financial or other competitively sensitive business information about any other doctors, or require a doctor to disclose similar information about a payor.
5. None of the three defendants may own an interest in an organization (including the IPA and PHO) that sets fees or other terms of reimbursement, or negotiates on behalf of competing physicians, *unless* that organization is a qualified managed care plan meeting the 30%/20% and substantial financial risk tests.
6. Danbury Hospital is prohibited from using its control over staff privileges with the purpose of reducing competition with the hospital in any line of business, including managed care, outpatient services, and physician services. It may still make staff decisions to assure quality of care.
7. Danbury Hospital cannot require that patients buying its inpatient services must also use its utilization review program, qualified care plan, ancillary or outpatient services, unless as part of a contract in which the hospital has substantial financial risk.
8. The hospital cannot condition rates for the use of its inpatient hospital services on the exclusive use by the payor of the hospital's outpatient services, unless under a contract in which the hospital bears substantial financial risk for the delivery of the outpatient services.
9. The IPA and PHO must notify all participating physicians that they are free to contract separately with any payor on any terms. The IPA and PHO must further notify each payor with whom they are dealing that each of the PHO's participating physicians is free to contract separately with the payor without consultation with (and presumably without the approval of) the IPA or PHO. The consent order will be in effect for 10 years.

Consent Order Will Have Far-Reaching Impact

The ripple effect of the consent order will have a substantial impact on other hospitals and PHOs, both in Connecticut and throughout the country. It is clearly intended by the Department of Justice and the state attorney general to act as a roadmap for other PHOs. The consent order itself reads more like a body of regulations than the more typical injunction. It is very detailed and, unfortunately, complex.

The Danbury situation had its unique facts, most importantly that Danbury Hospital has a natural geographic monopoly for the provision of inpatient services. The major themes in the consent order, however, will have wider application, and the Department of Justice has just rung the warning bell.

If Your PHO Is "Too Fat," Watch Out!

The most significant lesson from the Danbury consent order is that if your PHO has as its members too high a percentage of the physicians in its market, its actions in negotiating prices and other competitive terms will be closely—and perhaps harshly—scrutinized by the Justice Department.

This will profoundly affect PHOs and IPAs across the state. Many of Connecticut's PHOs and IPAs are still "first generation" models. The PHO/IPA is initially created and then invites the entire medical staff of the local hospital to join. It is not unusual for IPAs or PHOs to have 70% or more of the medical staff as its members. These numbers far exceed the "safety zones" set forth in the 1994 Statements of Enforcement Policy and Analytical Principles Relating to Health Care and Antitrust (the "1994 Guidelines").

The 1994 guidelines state that the Department of Justice will not seriously review a provider joint venture as long as its membership is no more than 30% of the physicians in any relevant market, or no more than 20% if the joint venture will require its members to act exclusively through it. The significance of the Danbury consent order is that it appears to take the position that if an IPA or PHO has greater than 30%/20% of the physicians in its market as members, then the IPA or PHO can only escape antitrust scrutiny by either using a very strict form of the messenger model to negotiate fees, or by downsizing until it is small enough to be within the Safety Zone. This downsizing will in turn raise new issues as to which physicians are entitled to remain in the IPA/PHO and who will be cast out.

Simply put, the Department of Justice and attorney general seem to be taking the position that "fat" IPAs and PHOs will have to slim down, change to the Messenger Model method of negotiating, or face an enforcement action.

The consent order does not speak directly to the continued vitality of "attorney-in-fact" models for negotiating. Whether that negotiation model will pass antitrust muster in the future will likely depend on the specific method used by the IPA/PHO to create the minimum fee schedule and the percentage of physicians in the area it has as members. The Danbury Hospital/IPA consent decree will require each PHO and IPA in Connecticut to reassess carefully its market position, its percentages of physician membership and its price negotiation practices in order to ensure conformity with the difficult guidelines promulgated by the Department of Justice and the Connecticut attorney general.

Regulations for the Facsimile Transmission of Noncontrolled and Controlled Drug Prescriptions

CONNECTICUT PHARMACEUTICAL ASSOCIATION

Recent changes in Connecticut statutes and regulations now allow prescribing practitioners to transmit prescriptions by means of a facsimile (fax) machine to pharmacies. In order for this new procedure to work effortlessly, it is important that prescribing practitioners and pharmacies be made aware of what is allowed and what their responsibilities are. We have published the new regulations in *Connecticut Pharmacist* and ask that you either publish them in *Connecticut Medicine* or print the following synopsis of the regulations:

For Noncontrolled Prescriptions and Schedule III, IV, and V Controlled Substances:

1. The prescription must clearly contain the name of the pharmacy to which the fax is being transmitted and the name of the facility from which it is being transmitted if the prescription is written for an inpatient of a chronic or convalescent nursing home or a rest home with nursing supervision.

2. The faxed prescription must clearly display a statement in substantially the following form “This prescription is valid only if transmitted by means of a facsimile machine.”

3. If a pharmacist questions the accuracy or authenticity of a faxed prescription, he or she must contact the prescribing practitioner for verification.

4. A pharmacist shall not maintain direct telephone, facsimile machine, or computer lines into a health-care facility or practitioner’s office, nor shall the pharmacist enter into any agreement with a health-care facility or practitioner which would adversely affect a person’s freedom to choose the pharmacy at which the prescription will be filled.

For Schedule II Controlled Drug Prescriptions:

1. All of the requirements for noncontrolled drug prescriptions as listed above shall apply.

2. Except as noted in sections 3 and 4, below, a prescription for a Schedule II controlled substance may be faxed to a pharmacy provided the original written, signed prescription is provided to the pharmacist prior to the actual dispensing. The original written, signed prescription and not the faxed copy of the prescription must be maintained as the original record of dispensing.

3. A prescription for a Schedule II narcotic substance to be compounded for direct administration to a patient by parenteral, intravenous, intramuscular, subcutaneous or intraspinal infusion may be transmitted to a pharmacy by a practitioner or his agent and the faxed prescription will be accepted as the original prescription.

4. Prescriptions for Schedule II controlled substances for patients in long-term care facilities may be faxed to a pharmacy by a practitioner or his agent and the faxed prescription will be accepted as the original prescription.

Finally, the regulations state that it shall be the responsibility of the prescribing practitioner to insure that the prescription form that is used to transmit the prescription is either destroyed immediately or marked or controlled in such a manner as to prevent its use to obtain controlled substances by other means than is allowed by the regulations.

American Medical Association

Physicians dedicated to the health of America

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September 14, 1995

The Honorable Nancy Johnson
U.S. House of Representatives
343 Cannon House Office Building
Washington, DC 20515

Dear Representative Johnson:

Thank you for affording the American Medical Association (AMA) an opportunity to review the September 8th revision of your GME reform proposal. We were pleased to note that your revisions speak to many of the concerns the AMA originally voiced in response to your earlier proposal. We are particularly pleased to see the availability of various transition mechanisms to help protect the overall mission of the GME system in training high quality medical professionals as reforms are put into place over time. Two chief areas of concern remain, as well as several details of implementation, that we would like to see addressed.

Our first concern regards the mechanism in Proposal #2 by which "centers of excellence" or "high quality programs" would be designated. In our view, it would be inappropriate for the ranking of these programs to be performed by government-based entities. Clearly, the Congress is seeking some mechanism through which to allocate scarce resources based on some ranking system. The criteria for assessing such ranking does not currently exist and would be the appropriate subject for deliberation by the Commission on GME that you seek to establish, but *only* if that Commission is composed of *private sector experts* as described below. Further, those criteria must provide some measure of reliability for both graduate medical students and the institutions in which they work; annual shifting of priorities will undermine the requisite stability for proper training and patient care.

Our second concern regards the composition and charge of the Commission your proposal would establish. The AMA strongly believes that the Commission on GME must have high public credibility and formally represent the interests of *all* major parties with a stake in the redesign of GME funding. This Commission should be a public-private partnership that recognizes multiple interests in addition to those represented by government-derived entities such as PPRC, COGME and ProPAC. At the very least, medical professional and trade associations, private payers and representatives from state and local governments should be formally represented on the Commission so that their input may be considered on an equal footing with that of government entities. A consultative capacity would be utterly inadequate to fairly represent these vital interests. This criticism is targeted at all the review or recommendation activities set out in the proposal that do not include at least an equal representation of private sector interests.

(continued next page)

Reprint of letter sent to The Honorable Nancy Johnson from James S. Todd, M.D., Executive Vice President of the AMA, Chicago, Ill.

We urge you to drop the “If warranted” qualification from Proposal #6, which calls on the Commission to “recommend alternatives to broad-based ‘all-payer’ financing and distribution of those funds.” The AMA strongly maintains that an all-payer financing pool is *fundamental* to financing reform; without it, the system continues to be perilously dependent on the federal government’s purse while those entities benefitting from GME continue to not pay their fair share.

In addition, we believe the charge for this Commission is too narrow. Comprised as described above, this Commission should also be charged with studying physician workforce needs and making recommendations about the future funding of GME in this context. There should be appropriate protection of Commission members from antitrust exposure arising from these planning activities. The Commission should submit its recommendations to the Congress in FY97.

Our remaining remarks are narrowly targeted. In Proposal #2, the provision limiting full payment support to first board certification is acceptable. We do not believe, however, that it should be further qualified by limiting it to five years. While most board certification programs take five or fewer years to complete, a few exceed five years and should not be arbitrarily discriminated against by discontinuing funding before completion.

In addition, given the special needs of the Medicare elderly population, it is very important to preserve a provision in current law which grants full support for the additional two years of training beyond first certification required for *geriatrics* training. As geriatrics training requires three years in either internal medicine or family practice and two years of geriatrics fellowship, the support would be comparable to first board certification for other primary care specialties. Failure to preserve current law in this area will effectively eliminate almost all geriatrics training programs.

Your revised proposal has many praiseworthy elements that deserve preservation throughout the process. We are particularly eager to see in the final product your proposals to transfer monies now in the AAPCC formula directly to teaching facilities and to ensure that reimbursement is made directly to the site where training is provided.

Overall, your revised proposal is one which the AMA believes can provide the starting point from which a fair balancing of interests may be achieved. Our goal must continue to be the safeguarding of the future of high quality medical training. We appreciate your responsiveness to our concerns and hope that we may continue to work with you and the Committee to reach the best result possible in this complex area of reform. Please do not hesitate to contact our Washington office (at 202-789-7400) immediately with your concerns or questions.

Sincerely,

James S. Todd, M.D.

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References: 1. Pitt B, Mancini J, Ellis SG, et al. Pravastatin Limitation of Atherosclerosis in the Coronary Arteries (PLAC I). *J Am Coll Cardiol.* In Press. **2.** Crouse JR, Byington P, Bond MG, et al. Pravastatin, Lipids and Atherosclerosis in the Carotid Arteries (PLAC II). *Am J Cardiol.* 1995;75:455-459.

Please see CONTRAINDICATIONS, WARNINGS, PRECAUTIONS, and ADVERSE REACTIONS in the brief summary of prescribing information on the reverse side.

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NTRAINDICATIONS

persensitivity to any component of this medication.

Active liver disease or unexplained, persistent elevations in liver function tests (see **WARNINGS**).

Pregnancy and lactation. Atherosclerosis is a chronic process and discontinuation of lipid-lowering drugs during pregnan- should have little impact on the outcome of long-term therapy of primary hypercholesterolemia. Cholesterol and other ducts of cholesterol biosynthesis are essential components for fetal development (including synthesis of steroids and cell mbranes). Since HMG-CoA reductase inhibitors decrease cholesterol synthesis and possibly the synthesis of other biolog- lly active substances derived from cholesterol, they may cause fetal harm when administered to pregnant women. erefore, HMG-CoA reductase inhibitors are contraindicated during pregnancy and in nursing mothers. **Pravastatin should administered to women of childbearing age only when such patients are highly unlikely to conceive and have been ormed of the potential hazards**. If the patient becomes pregnant while taking this class of drug, therapy should be discon- ued and the patient apprised of the potential hazard to the fetus.

ARNINGS

ver Enzymes: HMG-CoA reductase inhibitors, like some other lipid-lowering therapies, have been associated with biochem- l abnormalities of liver function. Increases of serum transaminase (ALT, AST) values to more than 3 times the upper limit normal occurring on 2 or more (not necessarily sequential) occasions have been reported in 1.3% of patients treated with avastatin in the U.S. over an average period of 18 months. These abnormalities were not associated with cholestasis and not appear to be related to treatment duration. In those patients in whom these abnormalities were believed to be related pravastatin and who were discontinued from therapy, the transaminase levels usually fell slowly to pretreatment levels. ese biochemical findings are usually asymptomatic although worldwide experience indicates that anorexia, weakness, d/or abdominal pain may also be present in rare patients.

It is recommended that liver function tests be performed before the initiation of treatment, at 6 and 12 weeks after itiation of therapy or elevation in dose, and periodically thereafter (e.g., semiannually). Patients who develop creased transaminase levels should be monitored with a second liver function evaluation to confirm the finding and be llowed thereafter with frequent liver function tests until the abnormality(ies) return to normal. Should an increase in AST ALT of three times the upper limit of normal or greater persist, withdrawal of pravastatin therapy is recommended.

Active liver disease or unexplained transaminase elevations are contraindications to the use of pravastatin (see **CON- AINDICATIONS**). Caution should be exercised when pravastatin is administered to patients with a history of liver disease heavy alcohol ingestion (see **CLINICAL PHARMACOLOGY**: **Pharmacokinetics/Metabolism**). Such patients should be osely monitored, started at the lower end of the recommended dosing range, and titrated to the desired therapeutic effect.

eletal Muscle: **Rare cases of rhabdomyolysis with acute renal failure secondary to myoglobinuria have been reported th pravastatin and other drugs in this class**. Uncomplicated myalgia has also been reported in pravastatin-treated patients ee **ADVERSE REACTIONS**). Myopathy, defined as muscle aching or muscle weakness in conjunction with increases in crea- e phosphokinase (CPK) values to greater than 10 times the upper normal limit, was rare (< 0.1%) in pravastatin clinical tri- . Myopathy should be considered in any patient with diffuse myalgias, muscle tenderness or weakness, and/or marked ele- tion of CPK. Patients should be advised to report promptly unexplained muscle pain, tenderness or weakness, particularly accompanied by malaise or fever. **Pravastatin therapy should be discontinued if markedly elevated CPK levels occur or yopathy is diagnosed or suspected**. **Pravastatin therapy should also be temporarily withheld in any patient experienc- g an acute or serious condition predisposing to the development of renal failure secondary to rhabdomyolysis, e.g., psis; hypotension; major surgery; trauma; severe metabolic, endocrine, or electrolyte disorders; or uncontrolled ilepsy**.

The risk of myopathy during treatment with another HMG-CoA reductase inhibitor is increased with concurrent therapy ith either erythromycin, cyclosporine, niacin, or fibrates. However, neither myopathy nor significant increases in CPK levels ve been observed in three reports involving a total of 100 post-transplant patients (24 renal and 76 cardiac) treated for up two years concurrently with pravastatin 10-40 mg and cyclosporine. Some of these patients also received other concomi- nt immunosuppressive therapies. In one single-dose study, pravastatin levels were found to be increased in cardiac trans- ant patients receiving cyclosporine. Further, in clinical trials involving small numbers of patients who were treated concur- ntly with pravastatin and niacin, there were no reports of myopathy. Also, myopathy was not reported in a trial of mbination pravastatin (40 mg/day) and gemfibrozil (1200 mg/day), although 4 of 75 patients on the combination showed arked CPK elevations versus one of 73 patients receiving placebo. There was a trend toward more frequent CPK elevations d patient withdrawals due to musculoskeletal symptoms in the group receiving combined treatment as compared with the oups receiving placebo, gemfibrozil, or pravastatin monotherapy (see **PRECAUTIONS**: **Drug Interactions**). **The use of brates alone may occasionally be associated with myopathy**. **The combined use of pravastatin and fibrates should be voided unless the benefit of further alterations in lipid levels is likely to outweigh the increased risk of this drug combi- ation.**

RECAUTIONS

eneral: Pravastatin may elevate creatine phosphokinase and transaminase levels (see **ADVERSE REACTIONS**). This should e considered in the differential diagnosis of chest pain in a patient on therapy with pravastatin.

Homozygous Familial Hypercholesterolemia. Pravastatin has not been evaluated in patients with rare homozygous familial ypercholesterolemia. In this group of patients, it has been reported that HMG-CoA reductase inhibitors are less effective ecause the patients lack functional LDL receptors.

Renal Insufficiency. A single 20 mg oral dose of pravastatin was administered to 24 patients with varying degrees of renal npairment (as determined by creatinine clearance). No effect was observed on the pharmacokinetics of pravastatin or its α-hydroxy isomeric metabolite (SQ 31,906). A small increase was seen in mean AUC values and half-life (t $1/2$) for the inac- ve enzymatic ring hydroxylation metabolite (SQ 31,945). Given this small sample size, the dosage administered, and the egree of individual variability, patients with renal impairment who are receiving pravastatin should be closely monitored.

nformation for Patients: Patients should be advised to report promptly unexplained muscle pain, tenderness or weakness, articularly if accompanied by malaise or fever.

rug Interactions: *Immunosuppressive Drugs, Gemfibrozil, Niacin (Nicotinic Acid), Erythromycin:* See **WARNINGS**: **Skeletal uscle**.

Antipyrine: Since concomitant administration of pravastatin had no effect on the clearance of antipyrine, interactions with ther drugs metabolized via the same hepatic cytochrome isozymes are not expected.

Cholestyramine/Colestipol: Concomitant administration resulted in an approximately 40 to 50% decrease in the mean AUC f pravastatin. However, when pravastatin was administered 1 hour before or 4 hours after cholestyramine or 1 hour before olestipol and a standard meal, there was no clinically significant decrease in bioavailability or therapeutic effect. (See **OSAGE AND ADMINISTRATION**: **Concomitant Therapy**.)

Warfarin: In a study involving 10 healthy male subjects given pravastatin and warfarin concomitantly for 6 days, bioavail- bility parameters at steady state for pravastatin (parent compound) were not altered. Pravastatin did not alter the plasma rotein-binding of warfarin. Concomitant dosing did increase the AUC and Cmax of warfarin but did not produce any changes its anticoagulant action (i.e., no increase was seen in mean prothrombin time after 6 days of concomitant therapy). owever, bleeding and extreme prolongation of prothrombin time has been reported with another drug in this class. Patients eceiving warfarin-type anticoagulants should have their prothrombin times closely monitored when pravastatin is initiated or he dosage of pravastatin is changed.

Cimetidine: The $AUC_{0\text{-}12hr}$ for pravastatin when given with cimetidine was not significantly different from the AUC for ravastatin when given alone. A significant difference was observed between the AUC's for pravastatin when given with cime- idine compared to when administered with antacid.

Digoxin: In a crossover trial involving 18 healthy male subjects given pravastatin and digoxin concurrently for 9 days, the ioavailability parameters of digoxin were not affected. The AUC of pravastatin tended to increase, but the overall bioavailabil- ty of pravastatin plus its metabolites SQ 31,906 and SQ 31,945 was not altered.

Cyclosporine: Some investigators have measured cyclosporine levels in patients on pravastatin, and to date, these results ndicate no clinically meaningful elevations in cyclosporine levels. In one single-dose study, pravastatin levels were found to e increased in cardiac transplant patients receiving cyclosporine.

Gemfibrozil: In a crossover study in 20 healthy male volunteers given concomitant single doses of pravastatin and gemfi- rozil, there was a significant decrease in urinary excretion and protein binding of pravastatin. In addition, there was a signifi- ant increase in AUC, Cmax, and Tmax for the pravastatin metabolite SQ 31,906. Combination therapy with pravastatin and emfibrozil is generally not recommended.

In interaction studies with *aspirin, antacids* (1 hour prior to PRAVACHOL (pravastatin sodium)), *cimetidine, nicotinic acid,* r *probucol*, no statistically significant differences in bioavailability were seen when PRAVACHOL was administered.

Other Drugs: During clinical trials, no noticeable drug interactions were reported when PRAVACHOL was added to: diuret- cs, antihypertensives, digitalis, ACE inhibitors, calcium channel blockers, beta-blockers, or nitroglycerin.

Endocrine Function: HMG-CoA reductase inhibitors interfere with cholesterol synthesis and lower circulating cholesterol lev- els and, as such, might theoretically blunt adrenal or gonadal steroid hormone production. Results of clinical trials with pravastatin in males and post-menopausal females were inconsistent with regard to possible effects of the drug on basal steroid hormone levels. In a study of 21 males, the mean testosterone response to human chorionic gonadotropin was sig- nificantly reduced ($p < 0.004$) after 16 weeks of treatment with 40 mg of pravastatin. However, the percentage of patients showing a ≥ 50% rise in plasma testosterone after human chorionic gonadotropin stimulation did not change significantly after therapy in these patients. The effects of HMG-CoA reductase inhibitors on spermatogenesis and fertility have not been studied in adequate numbers of patients. The effects, if any, of pravastatin on the pituitary-gonadal axis in pre-menopausal females are unknown. Patients treated with pravastatin who display clinical evidence of endocrine dysfunction should be evaluated appropriately. Caution should also be exercised if an HMG-CoA reductase inhibitor or other agent used to lower cholesterol levels is administered to patients also receiving other drugs (e.g., ketoconazole, spironolactone, cimetidine) that may diminish the levels or activity of steroid hormones.

CNS Toxicity: CNS vascular lesions, characterized by perivascular hemorrhage and edema and mononuclear cell infiltration of perivascular spaces, were seen in dogs treated with pravastatin at a dose of 25 mg/kg/day, a dose that produced a plasma drug level about 50 times higher than the mean drug level in humans taking 40 mg/day. Similar CNS vascular lesions have been observed with several other drugs in this class.

A chemically similar drug in this class produced optic nerve degeneration (Wallerian degeneration of retinogeniculate fibers) in clinically normal dogs in a dose-dependent fashion starting at 60 mg/kg/day, a dose that produced mean plasma levels about 30 times higher than the mean drug level in humans taking the highest recommended dose (as measured by total enzyme inhibitory activity). This same drug also produced vestibulocochlear Wallerian-like degeneration and retinal gan- glion cell chromatolysis in dogs treated for 14 weeks at 180 mg/kg/day, a dose which resulted in a mean plasma drug level similar to that seen with the 60 mg/kg/day dose.

Carcinogenesis, Mutagenesis, Impairment of Fertility: In a 2-year study in rats fed pravastatin at doses of 10, 30, or 100 mg/kg body weight, there was an increased incidence of hepatocellular carcinomas in males at the highest dose (p < Although rats were given up to 125 times the human dose (HD) on a mg/kg body weight basis, serum drug levels were 6 to 10 times higher than those measured in humans given 40 mg pravastatin as measured by AUC.

The oral administration of 10, 30, or 100 mg/kg (producing plasma drug levels approximately 0.5 to 5.0 times hu drug levels at 40 mg) of pravastatin to mice for 22 months resulted in a statistically significant increase in the inciden malignant lymphomas in treated females when all treatment groups were pooled and compared to controls ($p < 0.05$). incidence was not dose-related and male mice were not affected.

A chemically similar drug in this class was administered to mice for 72 weeks at 25, 100, and 400 mg/kg body we which resulted in mean serum drug levels approximately 3, 15, and 33 times higher than the mean human serum drug centration (as total inhibitory activity) after a 40 mg oral dose. Liver carcinomas were significantly increased in high females and mid- and high-dose males, with a maximum incidence of 90 percent in males. The incidence of adenomas liver was significantly increased in mid- and high-dose females. Drug treatment also significantly increased the inciden lung adenomas in mid- and high-dose males and females. Adenomas of the eye Harderian gland (a gland of the e rodents) were significantly higher in high-dose mice than in controls.

No evidence of mutagenicity was observed *in vitro*, with or without rat liver metabolic activation, in the following st microbial mutagen tests, using mutant strains of *Salmonella typhimurium* or *Escherichia coli;* a forward mutation as L5178Y TK +/– mouse lymphoma cells; a chromosomal aberration test in hamster cells; and a gene conversion assay *Saccharomyces cerevisiae*. In addition, there was no evidence of mutagenicity in either a dominant lethal test in mice or cronucleus test in mice.

In a study in rats, with daily doses up to 500 mg/kg, pravastatin did not produce any adverse effects on fertility or g reproductive performance. However, in a study with another HMG-CoA reductase inhibitor, there was decreased ferti male rats treated for 34 weeks at 25 mg/kg body weight, although this effect was not observed in a subsequent fertility when this same dose was administered for 11 weeks (the entire cycle of spermatogenesis, including epididymal matura In rats treated with this same reductase inhibitor at 180 mg/kg/day, seminiferous tubule degeneration (necrosis and l spermatogenic epithelium) was observed. Although not seen with pravastatin, two similar drugs in this class caused related testicular atrophy, decreased spermatogenesis, spermatocytic degeneration, and giant cell formation in dogs clinical significance of these findings is unclear.

Pregnancy: **Pregnancy Category X.**: See **CONTRAINDICATIONS**.

Safety in pregnant women has not been established. Pravastatin was not teratogenic in rats at doses up to 1000 daily or in rabbits at doses up to 50 mg/kg daily. These doses resulted in 20x (rabbit) or 240x (rat) the human exp based on surface area (mg/meter^2). However, in studies with another HMG-CoA reductase inhibitor, skeletal malform were observed in rats and mice. There has been one report of severe congenital bony deformity, tracheo-esophageal f and anal atresia (Vater association) in a baby born to a woman who took another HMG-CoA reductase inhibitor with troamphetamine sulfate during the first trimester of pregnancy. PRAVACHOL (pravastatin sodium) should be administe women of child-bearing potential only when such patients are highly unlikely to conceive and have been informed potential hazards. If the woman becomes pregnant while taking PRAVACHOL, it should be discontinued and the advised again as to the potential hazards to the fetus.

Nursing Mothers: A small amount of pravastatin is excreted in human breast milk. Because of the potential for s adverse reactions in nursing infants, women taking PRAVACHOL should not nurse (see **CONTRAINDICATIONS**).

Pediatric Use: Safety and effectiveness in individuals less than 18 years old have not been established. Hence, treatm patients less than 18 years old is not recommended at this time.

ADVERSE REACTIONS

Pravastatin is generally well tolerated; adverse reactions have usually been mild and transient. In 4-month long placeb trolled trials, 1.7% of pravastatin-treated patients and 1.2% of placebo-treated patients were discontinued from trea because of adverse experiences attributed to study drug therapy; this difference was not statistically significant. In lon studies, the most common reasons for discontinuation were asymptomatic serum transaminase increases and mild specific gastrointestinal complaints. During clinical trials the overall incidence of adverse events in the elderly was not ent from the incidence observed in younger patients.

Adverse Clinical Events: All adverse clinical events (regardless of attribution) reported in more than 2% of pravastatin ed patients in the placebo-controlled trials are identified in the table below; also shown are the percentages of pati whom these medical events were believed to be related or possibly related to the drug:

	All Events		Events Attributed to Study Drug	
Body System/ Event	Pravastatin (N = 900) %	Placebo (N = 411) %	Pravastatin (N = 900) %	Placebo (N = 411) %
Cardiovascular				
Cardiac Chest Pain	4.0	3.4	0.1	0.0
Dermatologic				
Rash	4.0*	1.1	1.3	0.9
Gastrointestinal				
Nausea/Vomiting	7.3	7.1	2.9	3.4
Diarrhea	6.2	5.6	2.0	1.9
Abdominal Pain	5.4	6.9	2.0	3.9
Constipation	4.0	7.1	2.4	5.1
Flatulence	3.3	3.6	2.7	3.4
Heartburn	2.9	1.9	2.0	0.7
General				
Fatigue	3.8	3.4	1.9	1.0
Chest Pain	3.7	1.9	0.3	0.2
Influenza	2.4*	0.7	0.0	0.0
Musculoskeletal				
Localized Pain	10.0	9.0	1.4	1.5
Myalgia	2.7	1.0	0.6	0.0
Nervous System				
Headache	6.2	3.9	1.7*	0.2
Dizziness	3.3	3.2	1.0	0.5
Renal/Genitourinary				
Urinary Abnormality	2.4	2.9	0.7	1.2
Respiratory				
Common Cold	7.0	6.3	0.0.	0.0
Rhinitis	4.0	4.1	0.1	0.0
Cough	2.6	1.7	0.1	0.0

* Statistically significantly different from placebo.

The following effects have been reported with drugs in this class; not all the effects listed below have necessar associated with pravastatin therapy:

Skeletal: myopathy, rhabdomyolysis, arthralgia.

Neurological: dysfunction of certain cranial nerves (including alteration of taste, impairment of extra-ocular mo facial paresis), tremor, vertigo, memory loss, paresthesia, peripheral neuropathy, peripheral nerve palsy, anxiety, in depression.

Hypersensitivity Reactions: An apparent hypersensitivity syndrome has been reported rarely which has included more of the following features: anaphylaxis, angioedema, lupus erythematous-like syndrome, polymyalgia rheumat matomyositis, vasculitis, purpura, thrombocytopenia, leukopenia, hemolytic anemia, positive ANA, ESR increase, eos ia, arthritis, arthralgia, urticaria, asthenia, photosensitivity, fever, chills, flushing, malaise, dyspnea, toxic epidermal sis, erythema multiforme, including Stevens-Johnson syndrome.

Gastrointestinal: pancreatitis, hepatitis, including chronic active hepatitis, cholestatic jaundice, fatty change in liv rarely, cirrhosis, fulminant hepatic necrosis, and hepatoma; anorexia, vomiting.

Reproductive: gynecomastia, loss of libido, erectile dysfunction.

Skin: alopecia, pruritus. A variety of skin changes (e.g., nodules, discoloration, dryness of skin/mucous mem changes to hair/nails) have been reported.

Eye: progression of cataracts (lens opacities), ophthalmoplegia.

Laboratory Abnormalities: elevated transaminases, alkaline phosphatase, and bilirubin; thyroid function abnorm

Laboratory Test Abnormalities: Increases in serum transaminase (ALT, AST) values and CPK have been obser **WARNINGS**).

Transient, asymptomatic eosinophilia has been reported. Eosinophil counts usually returned to normal despite therapy. Anemia, thrombocytopenia, and leukopenia have been reported with HMG-CoA reductase inhibitors.

Concomitant Therapy: Pravastatin has been administered concurrently with cholestyramine, colestipol, nicotinic acid col and gemfibrozil. Preliminary data suggest that the addition of either probucol or gemfibrozil to therapy with lovas pravastatin is not associated with greater reduction in LDL-cholesterol than that achieved with lovastatin or pravastat No adverse reactions unique to the combination or in addition to those previously reported for each drug alone ha reported. Myopathy and rhabdomyolysis (with or without acute renal failure) have been reported when another H reductase inhibitor was used in combination with immunosuppressive drugs, gemfibrozil, erythromycin, or lipid doses of nicotinic acid. Concomitant therapy with HMG-CoA reductase inhibitors and these agents is generally no mended. (See **WARNINGS: Skeletal Muscle** and **PRECAUTIONS**: **Drug Interactions**.)

OVERDOSAGE

To date, there are two reported cases of overdosage with pravastatin, both of which were asymptomatic and not with clinical laboratory abnormalities. If an overdose occurs, it should be treated symptomatically and supportive should be instituted as required.

Consult package insert before prescribing PRAVACHOL (pravastatin sodium).

(Revised 8-94)

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Connecticut State Medical Society's Committee on Public Health Launches Its Pledge to Reduce Violence in the Media

The Public Health Committee of the Connecticut State Medical Society is pleased to announce the release of a position statement aimed at reducing violence in the media. Spearheaded by the Committee's past-chairman, Dr. Benjamin Gordon, the project involved gaining the support of various professional organizations throughout Connecticut to join the Connecticut State Medical Society in its pledge to reduce media violence during children's programming hours.

Earlier this year, the Committee recognized that violence in the media was fast becoming a health hazard to children. In fact, according to estimates, by the time young people graduate from high school, they have viewed over 200,000 acts of violence. In addition, more than 200 studies have indicated that watching violence on television is consistently associated with subsequent aggressive action in preschoolers, adolescents, and young adults.

Alarmed by what the research indicated, Benjamin Gordon, M.D., past chairman of the Committee worked with Dorothy and Jerome Singer, co-directors of the Yale University Family Television Research and Consultation Center to draft a position statement aimed at reducing violence in the media during children's viewing hours.

The "Consensus" includes members of the Connecticut State Medical Society, Parent-Teacher Association of Connecticut, Connecticut Psychiatric Society, Connecticut Nurses' Association, Connecticut Psychological Association, American Academy of Pediatrics-Connecticut Chapter, Connecticut State Dental Association, Connecticut Academy of Family Physicians and the Connecticut Society for Clinical Social Work. These organizations, with thousands of members statewide, joined together to encourage their members and the community to make a personal commitment to provide Connecticut's children with a healthier lifestyle by limiting the children's viewing of violent program, and providing alternative programming choices for them.

The position statement is the first step in presenting a strong and unified voice to the local media expressing concern about violence on children's programs and encouraging age-appropriate programs during children viewing hours. The "Consensus" will circulate the position statement and informational sheet to their members. Signatures will be forwarded to local television station managers, cable companies, and corporate sponsors to encourage them to review their programming during children's viewing hours. CSMS members are encouraged to make copies of the information contained herein and make the information available in their patient area.

violence in the media sends the wrong message

SCREEN AND TELEVISION CHARACTERS ARE ROLE MODELS

Violence is often used in response to minimal slights:

1) This is an inappropriate way to handle personal differences.

2) Violence is often presented as the most common way to resolve differences.

3) Young and immature viewers think this is acceptable adult behavior because screen and television characters are role models.

NO ONE ON THE SCREEN IS REALLY BEING HURT

When viewers imitate what they see, they're often surprised by the amount of real pain and the permanence of death, disability and heartache their actions leave behind. Real victims of shootings, stabbings and accidents do not appear as new characters in the next movie.

PEOPLE GET ACCUSTOMED TO VIOLENCE

When they see it repeatedly in the media, they accept real life violence more easily.

WITNESSING VIOLENCE DAMAGES THE DEVELOPMENT OF CHILDREN

Research evidence indicates that children exposed to a great deal of television violence at age 9, show high rates of ANTISOCIAL and CRIMINAL BEHAVIOR, 10 to 20 years later.

More than 200 studies have demonstrated that watching violent televison by preschoolers, adolescents and young adults is consistently associated with subsequent aggressive action.

ATTEMPTS TO JUSTIFY VIOLENCE

Showing violent victory over evil prevents the presentation of many OTHER ways to solve problems. Truly heroic characters solve social and personal problems with honor and sensitivity, respect and integrity.

NO ONE GROUP IS TO BLAME

The manufacturer needs to sell goods to the public. The advertiser finds that "sensibility shockers" in programs get a larger audience. The media must produce such themes to get paid. How can this cycle of violent portrayals on television and in the movies be broken?

WHAT CAN BE DONE?

You, the Viewer, can voice your demand to reduce the frequency and intensity of the violent images presented in the media. Make a personal commitment to your family to stop viewing unnecessary violence in the visual media.

Sign the attached statement.

Get your family, friends and organizations to sign also. (Feel free to photocopy this material) Your signatures will be forwarded to local television station managers, cable companies and corporate sponsors to encourage them to reduce violent programming.

Developed by the Consensus of the Professions:

CT State Medical Society
CT Chapter, American Academy of Pediatrics
CT Academy of Family Physicians
CT Nurses' Association
CT Parent-Teacher Association
CT Psychiatric Society
CT Psychological Association
CT State Dental Association
CT Society for Clinical Social Work

POSITION STATEMENT

TO REDUCE VIOLENCE IN THE MEDIA

(Developed by the Consensus of the Professions)*

WE, THE UNDERSIGNED, OBJECT TO THE IMAGES OF VIOLENCE UNDERMINING THE DEVELOPMENT OF HEALTHY PROBLEM-SOLVING SKILLS IN CHILDREN.

WE, THE UNDERSIGNED, REFUSE TO WATCH, OR ALLOW OUR CHILDREN TO WATCH, MOVIES AND TELEVISION PROGRAMS WITH UNNECESSARY VIOLENCE AND CRUELTY. WE FAVOR CONSTRUCTIVE AND ENTERTAINING PROGRAMS.

WE, THE UNDERSIGNED, WILL NOT SUPPORT THOSE COMPANIES THAT SPONSOR PROGRAMS WITH EXCESSIVE VIOLENT CONTENT.

Make copies of the statement and attach as many pages of signatures as you obtain.

Return to the Connecticut State Medical Society, Committee on Public Health, 160 St. Ronan Street, New Haven, CT 06511. Signatures will be forwarded to local television station managers, cable companies,and corporate sponsors.

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CT Parent-Teacher Association
CT Psychiatric Society
CT Psychological Association
CT State Dental Association
CT Society for Clinical Social Work

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rate established as "prime" plus +/– % with funding level based on prior monthly collection history.	Medicare, Medicaid Other third party plans no-self pay

(1) the funding is structured as an on going forty five (45) day transaction.
(2) the "rate" quoted for the financing will be determined by Terresterial Capital Finding, Inc.

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Account Executive
Suite 2600
One Gateway Center
Newark, NJ 07102
201-456-7021

NOVEMBER IS NATIONAL DIABETES MONTH

Diabetics Can Take Action Against Blindness

Each year, more than 10,000 Americans will go blind from diabetic eye disease that cannot be treated quickly and effectively. Unfortunately, most diabetics do not make annual eye examinations a part of their regular routine. They do not discover they have an eye problem until they begin to lose their vision, and by then, the damage is permanent and irreversible.

During National Diabetes Month, Prevent Blindness Connecticut urges diabetics to begin making complete eye examinations through *dilated pupils* an annual practice. Early stages of diabetic eye disease can be caught and treated early, before vision is lost.

Prevent Blindness Connecticut has a publication entitled "Diabetic Retinopathy." For your free copy, call Prevent Blindness at (800) 850-2020. Other free information is also available.

Prevent Blindness Connecticut, a Combined Health Appeal agency, is the state's only nonprofit health organization dedicated to saving sight through eye screenings, public and professional education, eye safety activities such as Wise Owl Clubs for schools and industry, and research. Prevent Blindness screened 1,048 adults for eye diseases such as glaucoma, macular degeneration and cataracts and 9,526 children ages three to five last year. Over 155 people with serious vision problems requiring treatment were discovered. Prevent Blindness Connecticut is supported by donations, memorial gifts, and bequests.

"A Room of One's Own" for Primary Care?

EDWARD VOLPINTESTA, M.D.

IN most hospitals primary care still does not have a strong identity. It may be that the all-absorbing concentration on cost control forced upon our medical leadership by federal and state government, by big business, and by the insurance industry has deflected their attention away from this issue.

Nevertheless, the scarcity of discussion and concern for this issue is worrisome for many generalist physicians and they wonder if all the hoopla about primary care is sincere. For several reasons.

For example, our medical journals continually publish articles that promote primary care and stress its importance to the health-care system; every major study of health care in this country for at least the past 50 years has recommended repeatedly the need for more generalists; and recently our federal government through the Agency for Health Care Policy and Research (AHCPR) has established a national office to study ways to improve the practice of primary care.

Thus, in view of all this apparent support for primary care, it is difficult to understand why in many hospitals primary-care doctors have still not been encouraged to establish their own administrative identity. And more so because in many community hospitals primary-care physicians represent the largest group of physicians on the entire medical staff.

Compared to other specialties, primary care has a minimal power base. Without any authority to make its own agenda it is forced to adapt to those created by hospital administrators and the various chiefs of departments. Primary care in the hospital arena thus becomes an accommodator not a true collaborator in defining its role.

Indeed, except where independent departments of family practice or primary care do exist, many generalist physicians feel voiceless and powerless and alienated in the hospital arena, where many believe that hospital dominated politics excludes them. Doubtless, there are other specialists who for their own reasons feel similarly alienated. But it seems that primary-care doctors are in the majority on this issue.

This inconsistency between the espousal of primary care by organized medicine and the indifference with which it is treated by many hospitals is not emphasized sufficiently in our literature. Neither does it receive any attention by county or state medical societies; or at medical staff meetings. And for some reason the leadership of managed care is silent on this topic.

There are some who feel that the best answer to this problem would be to create independent departments of primary care. Obviously, this can't happen immediately because it is a tremendous undertaking and will require extraordinary collaboration with existing departments.

But sections of primary care should be more easily and rapidly achievable. If administered well they can succeed. Besides, they can provide a testing ground where the wisdom and feasibility of creating departments of primary care in the future can be studied. Family practitioners and general internists, because of their large areas of overlap, are natural allies for such alliances.

Unfortunately their leadership seems more disposed to dwell on the small differences that separate them than on the great similarities that should unite them. It is likely that pressure from managed care will force them to overcome the artificial arguments that keep them apart.

Organized medicine tells us that though these are times that are filled with fear and suspicion there is also room for

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EDWARD J. VOLPINTESTA, M.D., family physician. Bethel Medical Group, P.C., Bethel.

hope and optimism, and that working together accomplishes more than working alone.

It certainly would do no harm if the leadership of primary care worked together to initiate a dialectic among their colleagues in the specialties, hospital administrators, and leaders in managed care to focus on the merits of creating sections of primary care in hospitals.

It seems that hospital sections of primary care are an idea whose time has come. If family practitioners and general internists cannot activate themselves soon to make it happen, they may be pressured to do so by managed-care organizations.

Our journals and newsletters tell us that in some areas of the country specialists are taking special courses to retool themselves for primary care. Thus it seems fair to say that market forces are favoring primary care.

However, a random sampling of 14 out of the 32 general hospitals in Connecticut show that only two of them have sections of primary care.

One is a large teaching hospital that has a department of medicine and a department of primary care. The other is a large academic medical center that has a department of medicine and a department of internal medicine-primary care. Two have separate departments of general medicine and family practice.

The other 10 combine general internists, family practitioners, and specialists together in departments of medicine.

But primary care has its own mindset. It needs freedom to develop its potential, unhampered by the restraints and turf issues of specialty medicine.

We have been encouraged by others in the knowledge that we all need a place where we can express our identity and pursue our aspirations freely; whether they are the needs of a nation or of a solitary individual.

For example, Virginia Woolf admonished women writers that if they were going to find their own voices they would need their own spaces in which to do it. The title of her book *A Room of One's Own* says it all.

Albert Einstein in 1931 spoke of the need for having a "... spiritual center to preserve ... solidarity in difficult times" in behalf of the return of Israel to its homeland in Palestine.

Whether we choose to understand it as a "spiritual center" or as a "room of one's own," or as something else, the time is right for primary-care doctors to have their own sections and departments.

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Reform Measures Brought Increased Profits, Not Coverage

ERIC I. B. BELLER

HARRY and Louise may have killed the legislation, but health-care reform did not die. Spurred on in 1993 by the seemingly likely passage of President Bill Clinton's Health Security Act, the health care marketplace sprung into action. When the act died in September 1994, however, the marketplace remained in action. The transformation still underway is vast and profound.

As conceived by Ira Magaziner, the Health Security Act was to have squeezed inefficiencies out of the health-care delivery system by managed competition. The population was to have been aggregated into large health alliances that would have contracted for health care services provided by large accountable health plans. To compete successfully under such a system, insurers and providers would have needed to aggregate and cut costs dramatically. Insurers and providers continued to aggregate and cut costs despite the death of the act, but the intended purpose of these measures has been lost.

That purpose was to achieve universal coverage. The capital freed up by managed competition was to have helped fund coverage for the nation's more than 40 million uninsured. Instead, that capital has gone into increased corporate profits.

Instead of funding coverage for the Nation's more than 40 million uninsured, the capital freed up by managed competition has gone into increased corporate profits.

Wall Street's intense interest in health maintenance organizations, for instance—which have been identified as the most aggressive of the managed-care cost cutters—is well documented.

Most readers will agree that there is nothing wrong with corporate profit as such. We each would like a bit more profit ourselves. As a matter of social justice, however, the diversion of funds from expanded health coverage to expanded profit margins must be condemned. The means has become an end in itself. The market transformation that has followed is not a matter of economic inevitability but of failure of political will.

The human cost of the failure to achieve universal coverage is obvious; just think what would happen to you and your family's quality of life if you were to find yourself among the 35 million uninsured. A less obvious cost, however, is economic. Eventually, the uninsured find their way to the emergency room, where they receive much more costly but much less efficacious treatment. Either the insured eventually pay for this treatment through higher premiums, or the hospital is never compensated at all, placing the institution in financial jeopardy. Ironically, universal coverage itself would have been a significant step in cutting inefficiency and waste from the health-care system while preserving the viability of our major urban hospitals.

Profits and Losses

The conversion of cost cutting from a means to an end brings with it a number of related economic and social ills,

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as well. What in general parlance we term a "health-care expenditure" Wall Street terms a "medical loss"—that portion of the premium dollar that is spent on health care. The phrase "medical loss" bespeaks a mind-set far removed from the physician's oath to do no harm.

The economic pressures exerted by the profit-driven mind-set threaten to eclipse the mind-set of the physician's oath. Health plans that restrict provider panels and refuse to cover services rendered by providers outside the panel disrupt many long-standing doctor-patient relationships. Contractual provisions that restrict a specialist physician's ability to disclose disagreements with the referring primary-care physician or the health plan over choice of treatment cast a pall over doctor-patient communication, potentially to the point of violating the doctrine of informed consent.

Closest to the economic heart of the matter is the cost-cutting technique employed by HMOs known as capitation. Capitation cuts costs by shifting the risk of overuse to providers. Providers face an economic incentive to withhold care and an economic disincentive to deliver care, the reverse of the incentives under traditional fee-for-service funding. The reversal creates a potentially perverse conflict of interest for the provider. In an article in the 25 January 1995 issue of the *Journal of the American Medical Association,* the AMA's Council on Ethical and Judicial Affairs gives the example of two different diagnostic imaging procedures, high-osmolar contrast media (HOCM) and low-osmolar contrast media (LOCM). Although both are regarded as effective, HOCM carries a higher risk of adverse reactions, including changes in heart, kidney and nervous system function, and pain, nausea and vomiting. LOCM, however, are considerably more expensive than HOCM. A physician who pays for the procedures he or she orders out of his capitation payment must therefore choose between the patient's well-being and the bottom line.

Another technique by which some insurance companies are known to lower costs is the aggressive denial of coverage for "experimental treatments." One well known example is autologous bone marrow transplantation for breast cancer. One person's experimental treatment, however, is another person's cure; it is a matter of how high the threshold of scientific proof of effectiveness is set. The higher the threshold, the fewer the new treatments that will be adequately funded to reach the marketplace. Beyond the immediate and regrettable cost of lost chances for the seriously ill today, the pace of medical, pharmacological, and technological research and innovation will slow tomorrow. The price will then be paid in lost business as we surrender global preeminence in these fields and in lost productivity and human pain as we forego the development of new and superior treatments for the illnesses to which our aging population will increasingly become vulnerable.

The evolving health-care marketplace creates at least one other troubling economic incentive. As Jerry Mashaw of the Yale Law School and Theodore Marmor of the Yale School of Organization and Management point out, this is the incentive to attract and insure healthier populations while avoiding or dropping the less healthy. (Hence the ubiquitous advertisements for new health plan members showing pictures of young, healthy mothers holding happy, healthy babies.) Insuring the healthy is a profitable business; insuring the unhealthy is less so or not at all. Yet it is the less healthy who need the coverage more.

Harry and Louise Rematch

What, then, should be done? Surely not the Republican proposal for reform of Medicare currently before Congress. Under this proposal, $270 billion would be cut from the Medicare program over seven years, resulting in a loss of coverage to those now insured. As Princeton sociologist and Clinton administration consultant Paul Starr argues, this is not a cautious version of reform, but its opposite—reverse reform. Rather, we must move toward a societal consensus that access to adequate health care is a right, not a privilege. Toward that end, progressive health-care reform must reassume a prominent place on the national domestic agenda. Those who have been hurt by the failure to enact universal coverage should reorganize and try again. Into this category fall organized labor, the elderly, academic and private medicine, hospitals and other providers, and drug and medical technology manufacturers. To prevail, however, these interest groups must win back the middle class from Harry and Louise.

In July 1995, Connecticut Senator Joseph Lieberman joined Senators Nancy Kassebaum and Edward Kennedy in introducing the bipartisan Health Insurance Reform Act of 1995. This bill would increase access to health-care benefits by providing improved portability of coverage; limiting preexisting condition exclusions; giving individuals and small employers greater access to insurance purchasing pools; and preventing health insurers from declining to provide or renew coverage. Such legislation could well become an important step in the right direction. It could also impede more significant movement, however, by taking care of the rules adversely affecting the middle class without taking on the cost issues adversely affecting the less advantaged.

Into this national debate must step physicians. To be effective, though, physicians must first reestablish their credibility as the patient's best friend and advocate. They and others have an opportunity to take a giant step in this direction by dropping their long-held opposition to the best alternative to Ira Magaziner's ill-fated mechanism for implementing universal coverage. That alternative, much simpler and more user friendly, is the single-payer system. The argument for a single-payer system, however, must await a future article.

Danbury Physician Finalist for County's Top Medical Award

The Fairfield County Medical Association recently announced that Danbury physician Dr. John M. Murphy has won the Dr. Melville G. Magida Award. The annual award recognizes a Fairfield County physician under age 40 for notable capability in patient treatment and care, and is jointly presented by the Richard and Hinda Rosenthal Foundation and the Fairfield County Medical Association. It is considered the highest medical honor in the county. Dr. Murphy is a neurologist affiliated with Danbury Hospital.

"Dr. Murphy is considered to be among New England's leading experts on Parkinson's Disease and is the only Connecticut physician researching and advancing a specialized treatment for advanced motor fluctuations in Parkinson's Disease. That, combined with his outreach work in the community, makes him an outstanding candidate for the Magida Award," said Mark S. Thompson, executive director of the Fairfield County Medical Association.

"It is particularly enthralling to watch him lecture to a group of elementary school children on the danger of substance abuse and the effects on the brain as he holds a model of the brain in his hand," said Dr. Paul B. Iannini, chairman of the Department of Medicine at Danbury Hospital, who nominated Dr. Murphy. "I guess that is because I have watched him hold the same model of the brain in his hand and enthrall senior staff members (at the hospital)."

Among Dr. Murphy's accomplishments, he is a frequent commentator on WLAD radio addressing a number of neurological disorders. He is actively involved in support groups, research activities, and rehabilitation of Parkinson's disease patients.

The Magida Award, first presented in 1980, is a unique honor in Fairfield County, and is presented yearly to a physician based on demonstrated sensitivities in the area of physician-patient relationships and selfless service to the community. Beyond written nominations and letters of support, medical leaders at each of the county's seven hospitals offer oral presentations to a distinguished selection panel of about a dozen people representing the Foundation and the medical community. This year, there are six finalists. Besides Dr. Murphy, they were: Dr. Michael R. Marks, Norwalk; Dr. Nicholas P. Mongillo, Bridgeport; Dr. Rod Acosta, Stamford; Dr. Michael H. Bar, Stamford; and Dr. Strick J. Woods, Trumbull.

This year, the Magida Award, was presented by The Fairfield County Medical Association on 11 October at its semi-annual meeting at the Stratford Ramada Inn. It was established by The Richard and Hinda Rosenthal Foundation of Stamford to honor the late Dr. Melville G. Magida, who was the Rosenthal family's personal physician.

The Fairfield County Medical Association, founded in 1792, is the professional organization representing more than 1,900 physicians who practice or reside in Fairfield County. The purpose of the county medical association is to bring physicians together and promote the health of the citizens of Fairfield County.

Uncertain Times: Preventing Illness, Promoting Wellness

1996 International Conference on Physician Health

February 7-10, 1996

Sheraton San Marcos Hotel
Chandler, Arizona

Sponsored by the American Medical Association, the Canadian Medical Association, the Federation of State Medical Boards, the Federation of Medical Licensing Authorities of Canada, the Federation of State Physician Health Programs

In cooperation with the American Society of Addiction Medicine and the Society for Professional Well-Being

A New Focus...
In these times of uncertain economic forces and rapidly advancing scientific knowledge, the stresses of keeping one's practice current and financially viable exact their toll on physicians. Physician health now includes a broad, pro-active, preventive approach of reducing all types of physician health problems and offering assistance before there is actual impairment.

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Key Note Speakers will include:

Frances Conley, MD -	"Ruminations of an Academic Maverick"
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Ronald Shellow, MD -	"Diagnosis vs. Disability: Legal and Clinical Issues"

Pre-Conference Institutes will include:

Update on Chemical Dependency: Edward Senay, MD, - *Cocaine;* Robert Swift, MD, PhD - *Current Pharmacologic Management Strategies;* Norman Miller, MD, - *Assessment and Management of Dual Diagnosis*

Update on Psychiatry: Morton Silverman, MD, - *Suicide;* Dominic Ciraulo, MD - *Newer Antidepressant Drugs and Drug Strategies;* Eberhardt Uhlenhuth, MD - *Anxiety Disorders: Changes in Diagnoses and Management*

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50 Years Ago
From *The Connecticut State Medical Journal*
November 1945

Psychiatric Aspects of Veterans Re-employment

C. CHARLES BURLINGAME, M.D., *HARTFORD*

Presented at Connecticut Regional Meeting on Medical Problems of Returning Veterans, Newington Veterans Hospital, Newington, Connecticut, 13 September 1945, sponsored by U.S. Veterans Administration and Connecticut State Medical Society.

IN the final analysis, all of us who have seen service in this war, the last war, or any other war, are veterans, and in speaking of social and medical veteran services, we are talking about services to our own numbers. It is very easy to dissipate the relationship we enjoyed with men while we were in the service, so I am very happy to see the remarriage between the Veterans Facility and the State Medical Society. We were all married during the war years.

First, I would like to call to your attention the biggest problem facing the Veterans Administration and the public today—this much talked of and pushed around "N.P." situation. At the induction line, it was revealed that there were apparently only a relatively small number of rejectees who merited being outside rather intimate psychiatric care. As time went on, the dischargees from the armed forces for neuropsychiatric reasons were very widely advertised, and statements were made of all the horrible things resulting from these neuropsychiatric disabilities which were inflicted upon the citizen soldier. As a matter of fact, it is not an exaggeration to say that the problem has been emphasized to the extent of convincing most people that we are a nation of psychoneurotics, screwballs, and what have you. All this, which I took at face value, I found very interesting.

Along with the rest of the nation, industrialists read in the newspapers that the year 1944 would produce a million neuropsychiatric cases from the armed forces. They also read that industry would be required by law to reassimilate these people, and along with so many others, the industrialists began to get a little jittery. As a result, I was called in to determine ways of protecting industry's equipment, and of protecting industry's employees, particularly the presidents, from having their heads shot off by some lunatic soldier discharged from the armed services.

I confess I started in with the assumption that there was a tremendous problem. I spent approximately a year investigating little industries employing 200, to industries employing 100,000 or more, but I had not gone far before I began to have some difficulty in finding any problem.

With a little study, it became quite evident that if a veteran came home, and punched somebody or went berserk, or something of that kind, it was front page news. Similar things have been going on at least since I became a psychiatrist, and that was thirty-seven years ago. In the past, they would sometimes make the front page, but in the larger cities, they were usually relegated to the back pages, or were not printed at all. The differentiating factors during war time were that the individuals were veterans, and a psychiatric panic had just passed over the country; therefore, the stories were "good" news.

I endeavored to discover just how such occurrences compared in proportion to the expectancy in civilian life. It was a difficult thing to determine, but I distinctly

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Reprinted from the *Connecticut State Medical Journal*, November 1945.

obtained the impression that these overt acts of some service people were no greater than had been occurring in civilian life. The only difference was that the service people had the distinguishing mark of being a specialized group.

I also studied this problem in another capacity when I was called to make an inspection tour across the country with the Secretary of War General Staff. It was military, and somewhat in confidence, so there are many facts which I am not at liberty to divulge. However, I feel that I can tell you, and I think you should know that the greater percentage of men discharged from the armed forces as psychoneurotics never left continental United States. It is reasonable to assume that in civilian life they would not have been labelled as psychoneurotic, and that they would not have needed a doctor's treatment. The root of the whole problem lay in the fact that these people were essentially not the military type, and in military circumstances, they reacted in a neurotic manner.

If you will bear with me a moment, I would like to be pedantic. It has been said in some quarters that a psychoneurosis is one of the luxuries of a lush civilization. I, myself, would hardly go that far. However, if there be a modicum of truth in that statement, it is worth while for us to consider it.

In civilian life, a man who has a little difficulty in his domestic relationships can juggle things around until they are accommodated to his peculiarities. Perhaps he can have a bedroom by himself, or with somebody else, or something. At any rate, his particular likes, quirks, and peculiarities can be given tougher consideration, and he is able to make the grade very nicely.

On the other hand, those of you who have been in the Army know that occasional difficulties arise as to the matter of a soldier, or even an officer, fitting the existing domestic relationship to his neurotic nicety. He may find it difficult, as many men do, to sleep in barracks, and to undress and appear in the September-morn state before his fellowmen.

It is clearly seen that the domestic relationship is easily adjustable in civilian life, as opposed to Army life, wherein it is frozen. However, should a man fail to make the adjustment in the Army, he would probably exhibit a neurotic reaction to that particular, and hence, be labelled psychoneurotic. The solution to the problem, and subsequently, the "cure," is obviously severance from the service. He does not need "special handling" from his friends and acquaintances. He only needs to get back into the swing of his civilian existence.

Another circumstance which is common to all is the social relationship. As civilians, one man will like to bowl, and another will prefer listening to the radio. Another can't stand the radio, but enjoys himself thoroughly with a good book. Another one may want to do something else, but each has the freedom of choice and execution. Here again, those of you who have been in the Army know that it is not easy to adapt yourself to the social circumstances of the armed services. You get just what is handed to you, within very narrow limits, and similarly, if a man can't take it, he may react in a neurotic manner. Obviously, he is not sick in the civilian sense at all. He does not need a psychiatrist; he needs to be released from the army and be shoved back into civilian life where those factors are controllable.

A third factor is the sexual side, which follows the same pattern as the two I have already mentioned. The sexual circumstances which may be very easily and properly adjusted in civilian life, are not equally flexible in the armed services, and some men react in a neurotic manner.

The fourth important factor is the job relationship. How many men could stand to be scooped in, lined up, and told, "You're bank clerks." They couldn't take it, and some of them would react in a neurotic way. It may give them a pain in the neck, figuratively, and sometimes literally. Because the man is the wrong person for the job, it may give him headaches or dizzy spells. Fortunately, such is not the case. A man has a choice of jobs, and he may choose one, and then try another until he finds one which he can do. Few, indeed, are the people who, in civilian life, are able to do any job into which they happen to be thrown, and luckily, civilian life is malleable enough to fit individual differences.

None of you who have seen a Top Sergeant in action would ever argue that a G. I. has much of a choice as to what he will or will not do! Sometimes they can't take it, they react in a neurotic way, and the answer lies in getting out of the Army and back where more flexible conditions offer greater opportunity in making adjustments.

So it is that I have tried to draw for you the picture of these four broad particulars governing a man's life; I have tried to show you how the military adjustment varies from civilian, and to explain to you why the problem must be considered in the light of this single sentence: These men were not soldier material, but they had been perfectly good civilian material, and except as we give emphasis to the problem, they are equally able to readjust, and do a good job of it. Not being soldier material, they were not good Army subjects, but nothing in the Army changed their civilian ability.

It is in ignorance of those facts that we may be at fault. If we look curiously as dischargees and say, "Oh, you're out of the Army; you're psychoneurotic," they being somewhat delicately balanced, are convinced in their minds that they *are* invalids. Poisoned by the prevailing opinion, they may have a sense of guilt or shame at having been diagnosed as psychoneurotic. Obviously, there is no compensation—dollars and cents, benefits, or funds of any kind—that will compensate for their right to be a healthy, dynamic force in this community.

Most of these chaps are going to come into your hands, and not into the hands of a psychiatrist. Furthermore, the bulk of the problems, and the stopping of the psychiatric panic will be up to you. Therefore, I urge you to use a little intelligent, common sense, and say to these dischargees who have a good work history. "Old man, we know all about this psychoneurosis stuff. It may have been true in the service, but it only means you weren't born to be a soldier in this particular war." Explain to them as I have tried to explain to you, that they should be reassured, and given a pat on the back. "Go back to work, old thing, you're okay. You don't need to see a psychiatrist."

As a matter of fact, most psychiatrists feel as I am telling you. We believe it is too bad to have the men reach us unless it is absolutely necessary, and the vast majority of these fellows should be stopped before they ever get to us.

I would like to emphasize the fact that I have been speaking of those chaps with a good work history, who have not seen combat. I would be misleading you if I left you with the impression that there is no real, solid psychiatric problem for us to tackle. What I am trying to get across is the denial of any need to be overwhelmed by a psychiatric problem which can be handled with a light touch.

I say the following advisedly: You have read in the paper about half a million military psychiatric cases, but based upon civilian standards, the psychotic or frank mental breakdowns in this war have been less, on a percentage basis, than in the same age group in civilian life. Just think that over, disregarding the nebulous psychoneurosis, escape mechanism, or whatever you wish to call it. Why don't we see those facts spread over the newspapers? Why isn't that news? I am far more impressed with the ability to take it and the stamina shown by our armed forces, than I am by these stories about the mass of mental breakdowns.

I am very tired of hearing that our men are coming back knocked to pieces in body and mind, that they are all going to be wrecks, and need to be adjusted. I am tired of hearing that every wife should be buying books and taking some courses in psychology, that she should take a telescope to see her darling come down the line, look through the telescope, and see whether the hind leg isn't swinging differently! Of course, it's swinging differently! He is more of a man than when he went away! If we turn the telescope on the wife, she probably couldn't stand it half as well as he could, so let's get back to sense.

These chaps are going to go through a period of adjustment, but why call it "psychiatric"?

If you go on a vacation, doctor, for six weeks or two months, the old office will look a bit queer and unfamiliar to you when you come back. You will feel a little strange in your own bailiwick, as though things were not quite the same. If you don't feel like that, your vacation didn't do you any good.

These chaps who have been away for much more than a month or two, are coming back, and they are going to feel strange, but that does not make it psychiatric.

I was called upon to examine some men who came from Attu, and since it is more interesting to make it specific, I shall tell you about one in particular. He had been there 21 months in that fog; 21 months in the fog, and not off the island. He made the grade and did very well, until he got back to Seattle, where he got hotel rooms through the U.S.O., or some other effective organization. Everything seemed strange. He would go out and buy a package of cigarettes, and walk right back into this room and stay there. He got a lot of attention. They almost sent him to a closed ward of an Army General Hospital.

Well, I talked to this chap. In the first place, he must have been a darned stable individual to take those 21 months without blowing a fuse. I know I would have blown it. If he had been able to adjust in half an hour without feeling strange on the way back to civilization, then he would have been a screwball! What he was having was a perfectly normal reaction to the circumstances. Why make it psychiatric?

Talking to this chap, I said, "There is nothing wrong with you. You had a hard time adjusting to that life. You are going to have a merry time adjusting to your old life. You will do in hours and days what it took you weeks and months to do there." Six weeks later I heard from the fellow, "Oh, I'm swell, doc, but I thought for a while they had me labelled a screwball."

All this has been for one purpose—to remind you not to lose your common sense just because we have had a war, and just because the psychiatric aspect has been so well advertised. You yourselves can liquidate many of the problems. You can reassure these chaps, and if a specialist is not necessary, you can be a very stabilizing influence. Many of them will need to go to a psychiatrist, but with a light tough, you can do a great deal of the work. Again, I am speaking largely of those men who never went overseas, and never saw combat, those who previously had a good, stable work history.

I have only one thing more, and it concerns those men who did extremely well in the Army and were the best of the bunch in combat, who left civilian life 100 per cent behind to identify themselves 100 per cent with the armed forces and their objectives. Those are the boys who may have the real difficulty in their readjustment to civilian life, not those who never did actually get into the fray. Those who never got into it kept one foot on the old familiar ground, and did not completely divorce themselves from civilian life. They may have less trouble getting back into the swing of things than those who went in and saw combat—and how they did see it—and lost themselves in the objectives of the Army. Those heroes and "good soldiers" are not going to be discharged as N.P. cases, or for any other medical reason, but they may need some real help. Be on the lookout for them.

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Myths About the Last Year of Life

Medical care during the last year of life has received great attention from both the public and the profession. Intensive services provided during the final months have been blamed for the rapid growth in health-care expenditures. Critics label these efforts medically futile and fiscally irresponsible. These judgments are based on four myths.

Myth #1: The increase in health-care expenditures is due to aggressive treatments and "heroic measures" in the last year of life.

It is true that a significant portion of Medicare dollars are spent in the beneficiaries' final year. Actually, this makes perfect sense. Patients are by definition sickest, and thus their need for medical services greatest, just before they die.

Lubitz et al (*N Engl J Med* 1993; 328:1092-6) have analyzed the numbers. In 1988, 28.6% of Medicare dollars were spent during the last 12 months of seniors' lives. But, contrary to public perception, this figure has not been increasing. In 1976, for example, before the rapid growth in intensive care units and dialysis, before MRIs and bone marrow transplants, the fraction of health-care expenses incurred during the last year of life was virtually the same: 28.2%. Even if we look at the last 30 days of hospitalization, when presumably all technological resources are summoned to help the critically ill, the result is the same: For both 1976 and 1988, about 40% of the final year's costs are generated in the last month.

Thus, expenditures in the final 12 months have grown in concert with, and not disproportionately to, the totality of medical costs. Efforts at cost control must look at the entire spectrum of medical care and not be unfairly focused on services rendered in terminal illness.

Myth #2: Health-care expenditures are "wasted" on those who die within one year.

Retrospective analysis of expenditures based on outcome is Monday morning quarterbacking. It's easy to blame the dead for excessive consumption of care. But we physicians don't deliver retrospective care. We make our judgments in the ER or the ICU when outcomes are not certain. Other than some advanced malignancies, we just don't know when a given patient is entering his final year. Are we to refrain from aggressive treatment simply because we think it likely he will die? If we estimate our patient's mortality at 80%, is that too little for the ICU? Is one-in-five not "cost effective"? If not and we withhold care, then the mortality prediction will be self-fulfilling as it rises to 100%.

Studies on the expenditures in the last year of life miss the forest for the trees. Our medical care, costly though it may be, is very successful. American life expectancy continues to increase, and our senior citizens live longer than those of any other country. If we look at the five percent of Medicare beneficiaries with the highest annual expenditures, over 60% are survivors (Lubitz et al, *N Engl J Med* 1993; 328:1092-6). How much can we reduce costs without putting their care in jeopardy?

Myth #3: Patients don't want to prolong a life in poor health; they want quality, not quantity.

Not necessarily so. That final year, despite progressive illness, can be very important to our patients. Tsevat et al (*Ann Intern Med* 1994; 122:514-20) interviewed seriously ill patients with a projected six-month mortality of 50%. The authors found that patients' perception of their current quality of life, despite their afflictions, was significantly greater than judged by either their physicians or family members. And contrary to public opinion, nearly 35% of the study's participants would not exchange their sick condition for a life in excellent health that was even *one day* shorter. The quantity-quality trade-off is not so obvious to those facing imminent death.

continued on next page

Of course, our patients' wishes do not obligate us to provide what is at the outset clearly futile care. And we don't. For example, recognizing the biological limitations for those over 90 years, physicians spend on them just half as much in the final year as we do for younger seniors (Lubitz et al, *N Engl J Med* 1993; 328:1092-6). But such cost savings are not the goal but rather the by-product of proper clinical judgment. We must remain our patients' advocate, and regardless of economic pressures, keep their well-being our foremost goal.

Myth #4: Advanced directives and living wills will save money by reducing intensive medical services.

Emanuel et al *(N Engl J Med* 19943; 330:540-4) studied Medicare charges for patients whose hospitalization ended in death. They showed that the charges for patients with advance directives or health-care proxies were just as high as the charges for those patients receiving full resuscitative efforts. What is expensive is not prolonging life on a ventilator in an ICU but simply dying in an acute care hospital.

Money can be saved by keeping terminally ill patients out of the hospital entirely. The authors postulate that hospice home care could save approximately 27% of Medicare costs in the last six months of life by caring for patients at home. But remember that hospice figures are primarily for patients with advanced cancer, for which predictions of survival are generally easier than for other medical conditions. Thus, this degree of savings is unlikely to occur when generalized to the entire Medicare population.

We all want to control health-care expenditures, and we all want to maximize value for the dollar. Physicians must sharpen their prognostic skills and inform their patients of predicted outcomes to the best of their ability. Decisions of care during serious illness must be open, deliberate, and honest. But ultimately the value of the care administered should be determined by those who receive it. Those who call this care wasteful might reflect that they do so only from the vantage of good health and by the grace of God.

Dickerman Hollister, Jr., M.D.
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REFLECTIONS ON MEDICINE

Virtues, Not Values: Medical Ethics, Not Business *Ethos*

ROBERT U. MASSEY, M.D.

FOR the past several months virtues have had an unexpected media boost. The pope asserted, in effect, that democracy could not work in the absence of virtue. Programs are being marketed to schools, audio tapes to be broadcast over classroom loudspeakers, proclaiming honesty, self-respect, hard work, and decent living. Hundreds of thousands of black males marched in an action of atonement and resolved to lead new and virtuous lives. There is a growing sense that the flimsy secular morality of the late 20th-century, while helpful for a peaceable community, will never assure it. The much maligned Victorians proclaimed a more comprehensive moral requirement; in Thackeray's words, one should aspire

> ...to have lofty aims, to lead a pure life, to keep your honour virgin; to have the esteem of your fellow citizens, and the love of your fireside; to bear good fortune meekly; to suffer evil with constancy; and through evil or good to maintain truth always.

Recent nonbiased historical studies have shown that those Victorians and Edwardians really meant all this! There is little question that the 18th- and early 19th-century American Republic took for granted the morals and manners of its citizenry, and depended on a shared ethical code to make their democracy work. The Enlightenment was followed by the Great Awakening!

Before biomedical ethics arrived on the scene about 30 years ago, our profession had assumed that doctors were, by and large, committed to something like the Victorian virtues; the easy acquiescence of many of our German and other European colleagues during the Nazi years raised grave doubts about these assumptions of integrity. After the war, undreamed-of new procedures and technologies presented ethical problems that seemed to overwhelm the simpler virtue ethics of our Victorian grandfathers.

The new bioethics, with its mantra of autonomy, nonmalfeasance, beneficence, and justice, nevertheless, dealt, as medical ethics always had, with the rights and responsibilities of that ancient duality, the doctor and patient or the nurse and patient. Little attention was paid to the laws of the guild in the new ethics, and the barrier that separated medicine from out-and-out commercialism slowly crumbled. Doctors and hospitals began to advertise their product lines and to talk of marketing strategy, market share, and delivering health care rather than providing medical care; the whole enterprise came to refer to itself as the health-care industry and paid its managers corporate salaries. The burden of nonprofit status was lightened by restructuring. Competition was the rule of the marketplace, and cooperation was out the window.

The *ethos* of corporations is hardly the same as the ethics of medicine. Neither is the *ethos* of big government: profit drives the corporation and politics is the energy of government. But the care of the sick, the disturbed, and the vulnerable should require that the ethics of medicine bind the institutions who profit by their outstanding skill in managing just as they bind the only ones who provide that care.

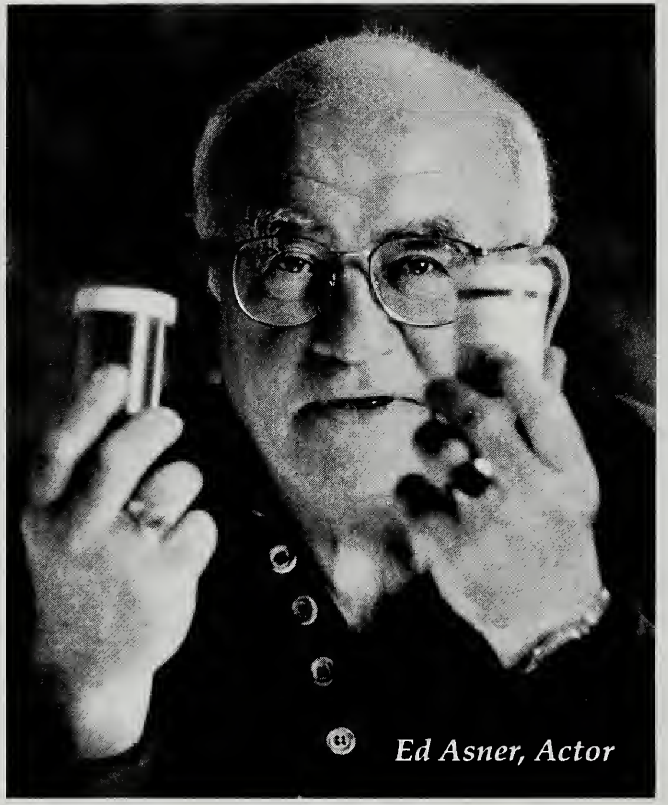
Institutional review boards, in other words, should begin reviewing their institutions. HMOs, group practices, hospitals, nursing homes, surgicenters, academic medical centers, and insurance companies who manage care and handle the money all for profit, now, more than ever before, need an immersion in classical medical, and nursing ethics. Virtues, not values, are enjoying a rebirth; ethics committees should latch on to this new enthusiasm for doing the right things for the right reasons.

They might start with the list in the Hippocratic Oath: defend the solidarity of the guild, use simple treatment measures first according to our ability and judgment, keep our patients from harm *and injustice,* give no deadly drugs *even if asked,* live a life and practice an art *in purity and holiness,* never attempt what we do not know how to do, and remember that all our work is *only* for the *benefit* of the sick, and finally keep all in strictest confidence (I have left out the line on abortion because that stirs controversy wherever moral strangers meet).

The Oath is but the beginning. Autonomy, or permission, beneficence, nonmaleficence or nonmalevolence, and justice—all add to and overlap the oath. But to these must be added charity; to paraphrase St. Paul: if I "have not charity, I am nothing." Corporate medicine may interpret this as charitable giving, funding professorships and beds and sponsoring AIDS research, but all that "profiteth nothing." Virtues, practiced with *caritas,* must be built into, become a part of, those corporations who have risked their capital to manage the practice of medicine; otherwise they should turn to managing something else, like highway repairs or parks and grounds. Surely, virtues rather than values are the coming thing!

ROBERT U. MASSEY, M.D., Professor Emeritus, Division of Humanistic Studies, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington.

Attention: Physicians



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This Month's Reading in Review

TIMOTHY B. NORBECK

"Once again, the fates of the sickest and weakest members of society are being determined by insurance executives, whose primary motive is profit. The health of the stricken individual is secondary to the almighty bottom line."

From Timothy L. Zurell's (Meriden) letter to the *Hartford Courant,* (16 September 1995)

"It is ironic that we have demanded the highest standards from our physicians, including a long education and training process. Yet we took the decision-making out of the hands of physicians and put it in the hands of those devoted to making profits for their stockholders."

From Cynthia M. Onorato's (Bristol) letter to the *Hartford Courant,* (27 September 1995)

"Physicians spend an average of 7.2 hours per week, or 12.4% of their working hours, providing free or reduced-fee care for needy patients.... More than two thirds of patient-care physicians, excluding federal employees and residents, provided some form of charity care in 1994 at an estimated value of $11.31 billion."

Washington Post (26 September 1995)

"Doctors have long complained that dealing with managed-care companies drives them crazy. Now a Seattle physician says it is making him sick. Dr. William Phillips of Northwest Family Practice (44 years old) had a nurse take his blood pressure each day for a month while he performed regular medical duties and again after any phone calls he made to insurance plans. Sure enough, he reported in *JAMA*, his blood pressure averaged 154 over 95 after nine contacts with managed-care companies, compared with 139 over 80 during other duties."

Shortly after completing his experiment, Dr. Phillips began taking medication for high blood pressure. The managed-care burden has become a source of humor at Northwest Family Practice. "My nurses said to be sure to tell you that the doctor may be on blood-pressure medicine," he said, "but the office staff is on Prozac."

Wall Street Journal (14 September 1995)

"Half of all health inflation over the past 20 years is due to technology improvements," according to Congress' Office of Technology.

Business Week (2 October 1995)

An Auburn, Washington, man wrote Ex-Lax to complain that the $1.99 product didn't work, and asked for his money back.... Confusing the man's refund with his zip code, the Ex-Lax computer mistakenly sent a check for $98,199.... The suddenly pleased consumer deposited the check, closed out his account a week later, and moved out of his apartment.... Ex-Lax detectives have been looking for him for several years.

Forbes (September 1995)

Medicare has 63 claims processing centers....The centers process 3.3 million claims and pay out $724 million daily.

NBC "Nightly News" (14 September 1995)

Malaria is turning up again in the U.S. after being wiped out back in the 1940s.... Doctors at a recent American Society of Microbiology meeting say that three people in Houston (TX) who had *not* traveled abroad caught the mosquito-borne parasite in the summer of 1994, apparently in their own neighborhoods.... Locally acquired malaria has been reported since 1990 in California, New Jersey, and New York.

Health Care News Today (19 September 1995)

Only in America: Prison inmates filed some 39,000 lawsuits last year, all but a handful dismissed. The National Association of Attorneys General recently reported on some of the more obvious nuisance suits:

Inmate sues chairman of parole board for not having received a scheduled parole hearing, although said inmate was on the lam when the hearing was to have been held (Mississippi).

Inmate claims serving ham and cheese sandwiches is cruel and unusual punishment (Massachusetts).

Inmate smoker complains about secondhand smoke in the prison unit (Kansas).

Forbes (25 September 1995)

TIMOTHY B. NORBECK, Executive Director, Connecticut State Medical Society.

Letter to the Editor

Letters to the Editor are considered for publication (subject to editing and abridgement), provided that they are submitted in duplicate, signed by all authors, typewritten in double spacing, and do not exceed 1-1/2 pages of text (excluding references). They should not duplicate similar material being submitted or published elsewhere. Letters referring to a recent Journal article should be received within six weeks of the article's publication.

More Acronyms?

To the Editor: After reading your relections re the use of acronyms along with the letter from Dr. Sataline prompted me to add this note.

My professor of medicine my last year at P&S was Dr. David Seegal—the year 1943. He scorned the use of this new vocabulary. He enjoyed describing his dislike with the use of PND. What did it stand for? It all would depend on whether you were an ear, nose and throat specialist or an internist. Need I say more!

J. Brooks Hoffman, M.D.
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Please contact Dr. Phillip Jacobs at (914) 833-1700 or (800) 333-2999 outside NY metro area or fax resume to (914) 833-1711.

Meeting Notice

Cosponsored by the American Medical Association, the Federation of State Medical Boards, the Canadian Medical Association, and the Federation of Medical Licensing Authorities of Canada, *"Uncertain Times: Preventing Illness, Promoting Wellness"* is the theme for the 1996 International Conference on Physician Health to be held in the United States on 7-10 February 1996, at the Sheraton San Marcos Hotel in Chandler, Arizona (near Phoenix). Presentations dealing with all aspects of physician health, including issues of well-being, impairment, disability, treatment, and education have been requested.

Of particular interest are issues of stress and physician health; epidemiologic data; the effects of violence directed at physicians; violence occurring within physicians' families; patient exploitation; mental illness, including substance abuse; physicial illness and disability, special populations; comparative data across states or countries; physician well-being and family functioning.

For more information: call Elaine Tejcek at (312) 464-5073 or FAX your inquiry to (312) 464-5841.

From the Executive Director's Office

COUNCIL MEETING

Thursday, 12 October 1995

Attendance

In addition to the Chairman, Dr. Joseph Czarsty, were Drs. Beck, Bigos, Brooks, Eslami, Geary, Herzog, Hollister, Kamens, Keating, Lesnik, McDonnell, Mushlin, Redmond, Timmerman, Watson, and Zanker.

Also present were: Mr. Norbeck, Ms. Lindquist, Mr. Brunell, Ms. Schaffman, Ms. Norbeck, Ms. Morelli, Mr. Sullivan, (all CSMS staff), Mr. Rick Fiorentino, (HCMA staff), Mr. Mark Thompson (FCMA staff), Ms. Ann Harney (NHCMA staff), Myron Genel, M.D., David Thompson, M.D., (CSMS-IPA), and David Parke, M.D., Chairman, CSMS Committee on Legislation.

Absent were: Drs. Ahamed, Bobruff, C. Czarsty, Deren, Franklin, Freedman, Handleman, Katz, Montegut, Sadowski, Scarpa, Schwartz, Sosa, Tesoro, Van Nostrand, Wetstone, Wolfson, and Zeppieri.

Reports of Related Organizations

CPRO: Dr. Kamens reported that the Health Care Finance Administration will finance a new project in Connecticut dealing with Part A of Medicare. CPRO will be funded in conjunction with Blue Cross, which is the Part A intermediary for Connecticut. CPRO will be looking at hospital admissions and conducting an analysis of Part A data.

He also announced that CPRO will be having a symposium as part of its outreach program which will be conducted on December 14th at the Ramada Inn, Meriden. It will be on atrial fibrillation and stroke. The studies that have been made will be presented at that time. It was also reported that CPRO will continue to cosponsor with CSMS radio spots on the flu vaccine.

CPRO software now brings small area analysis into real time for the State of Connecticut and has been looked at very favorably by HCFA. The idea behind it is to permit any hospital to be able to look at its own data with regard to a particular diagnosis category and how it is addressed in the state, the distribution of those diagnostic categories in the state, and to compare them to other hospitals. The hospital names are all blinded so that confidentiality is not breached.

Dr. Kamens reported that he was asked to represent CPRO on some committees in Hartford and has been sitting on the Unlicensed Professional committee which will discuss how unlicensed personnel may be used in critical care areas and what limited amount of performance can be expected from unlicensed personnel. He also serves on the following committees: the Committee on Long Term Care, Certificate of Need, Medicaid committee, Sub-Committee on Quality of Managed Care. It was reported that the Medicaid program is in the process of going to managed care, and that Blue Cross had been selected as one of the default HMOs and the Oxford Plan as the other. They are now signing up Medicaid patients. He stated that there are numerous problems associated with this project.

CSMS-IPA: Dr. David Thompson, president of the CSMS-IPA, reported that several changes are being made in the program and that the entire PRO manual has been revised. He reported in detail on many of the areas in which changes were made and stated that there were a significant number of improvements. He also stated that every attempt is being made to answer correspondence from the physicians as promptly as possible.

Report of the President

Dr. Hollister reported on some of the activities that had taken place since he reported to the Council at its last meeting. He discussed the issue of the Department of Health being able to open files on a number of physician complaints, whether under the impaired physician program, a data bank issue, or general category of complaints from the public about physician behavior. When these files are opened, physicians have had some difficulties being credentialed for managed-care organizations. Managed- care entities and some hospitals are now requesting that physicians applying for credentials sign a consent form which authorizes the release of confidential information by the Department of Public Health. This release is submitted to the Department of Public Health, and the Department is then obliged to release any information that might be in the physician's file, which would otherwise have been confidential. Because of several complaints from physicians in Fairfield County, a meeting was held with representatives of CSMS and Fairfield County regarding this issue. This meeting produced a thorough discussion of the issue clarifing many of the facts and circumstances while outlining areas that needs solutions. He reported that CSMS will be working with the Department of Public Health and Addiction Services and managed care organizations to resolve this problem.

He pointed out a line item in the proposed CSMS budget for 1996 providing funds for an Educational Expo to be held early in 1996. The income expected is approximately $21,000 and expenses listed as $15,000, which would make the project self-supporting and also provide some surplus funds. It is planned to have exhibits and programs for both physicians and office staffs. It was VOTED to approve Dr. Hollister's motion to approve this project and allocate the funds as outlined in the budget.

He gave a progress report on projects which he was developing. One was the Speaker's Bureau booklet, which when completed will be distributed to the media throughout the state for their reference. Another project was the pamphlet on health insurance and managed care plans which will be distributed to the public so that they can make an informed decision about their insurance coverage.

He reported that he was appointed by the lieutenant governor to a Statewide Planning Task Force. Its duties were somewhat vague, but he did know it did not involve health issues.

Report of the Executive Director

Mr. Norbeck reported that the AMA had endorsed the Republican Medicare Plan. The bill was approved along party lines 22-14 in the Ways and Means committee and the Commerce committee approved it 27-22. He explained in some detail the provisions of the bill. (Written background material was distributed to the Council.) The bill now goes to the Senate for approval. The AMA obtained a promise from the speaker of the house that the conversion factor would not be reduced in the next seven years and maybe it would be increased. A poll that appeared in the *Times Mirror* indicated that more Americans were following the Medicare debate (31%) than any other issue. AARP has just opened a new office in Concord, New Hampshire, Iowa, and Florida to push their issue to the forefront of the debate in the 1996 presidential race. He stated that he will be addressing a group of seniors in Wethersfield and it will be interesting to hear their reaction.

He reported that Blue Cross and Blue Shield of Wisconsin and its subsidiary HMO brought an antitrust suit against the Marshfield Physician Clinic charging that the physicians monopolized the HMO and physician services market. A trial court found in favor of the plaintiff (BC&BS). A Court of Appeals in Chicago reversed the trial court's decision and the damage award in its entirety ($17 million). Marshfield Clinic will also get back from BC&BS the $2 million spent on legal defense. The judge made several significant findings. 1) HMOs are not a separate market. 2) Marshfield did not have a monopoly in its service area, and even if it did, it would be a natural and therefore lawful monopoly. 3) That it was highly unlikely that any of Marshfield's actions constituted an abuse of monopoly power. Basically, the decision sends a message that physicians do have a right to be competitive, and that insurance companies are not necessarily going to rule the day.

Resolution on Managed Care

A resolution on "Managed Care" was referred to the Council by the House of Delegates for further study. In recognition that many of the issues raised have been addressed or were currently being addressed, CSMS staff was requested to prepare an analysis of the resolution. The staff report was accepted by the Council and referred the issue to the Ad Hoc Committee on health care for study. Dr. Ahamed Chairman of the the Ad Hoc Committee reported that two meetings of the Ad Hoc Committee have been held and they are in the process of finalizing a CSMS Action Plan which will outline and coordinate several CSMS activities related to managed care and patient protection. The Action Plan will include education of the public, the legislature, the administration, and CSMS members.

Report of the Fiscal Subcommittee

The Council took the following actions on the report of the Fiscal Subcommittee:

VOTED to approve the budget for 1996, as presented by the Fiscal Subcommittee, and to transmit the budget to the House of Delegates on November 15 with the Council's recommendation that the budget be approved and that the CSMS dues remain at $340. It was further recommended that when future budgets are submitted to the Council the previous year's expenses also be included.

Albert Schweitzer Institute for the Humanities

The president reported that he received correspondence from the subject organization informing him that the Institute is looking to expand their network of health-care professionals who can provide educational training, consultations, and direct medical service in developing regions. They expressed the need for specialists to work with the Nickerie Hospital in Suriname, South America.

Report of Task Force to Recommend Changes to the Impaired Physician Statutes

Dr. Keating reported that the Task Force had met on three occasions (complete minutes of these meetings were distributed to the Council) to evaluate the need for improving the existing impaired physician statute and to recommend the most appropriate changes. He informed the Council that the Task Force was not yet prepared to make its final recommendations, noting the complexity of the issues involved and the pros and cons of pursuing such changes. He also emphasized that any effort should not be undertaken in haste. The Task Force will continue to evaluate all possible avenues to accomplish positive change, including legislation, regulation, or the existing protocol.

Report of Physician Health Activities

Michele Norbeck, director of the program, distributed material which included information on the Physician Health Program activities for 1995 and a comprehensive report on the program. The materials distributed to the Council will also be used for fund raising for the program and education activities.

Proposal from the Cancer Coordinating Committee

The CSMS Cancer Coordinating Committee submitted a proposal to the Council for state legislative reforms to restrain unnecessary use of expensive medical technology and to promote insurance coverage for peer-reviewed clinical trials. It was VOTED to refer this proposal to the CSMS Committee on Legislation for study and report back to the Council.

Clinical Trial Comparing Schizophrenia Treatments

Clinical trials are being conducted in 22 cities, including Hartford at the Institute of Living, to determine the differences in the utilization and costs of acute psychiatric services between patients who receive RISPERDAL® (risperidone), an atypical antipsychotic drug, and those who receive conventional antipsychotic therapy. The study is sponsored by Janssen Research Foundation.

Medical professionals are encouraged to identify patients who may be appropriate candidates for this study. The clinical trial will be open-label comparison of approximately 656 subjects randomly assigned to receive either RISPERDAL or a conventional antipsychotic therapy of the investigators choice and monitored over a one year period. Patients must have experienced a relapse of schizophrenia within ten days of enrollment in the clinical trial.

The study will determine whether there are differences in any of the following outcomes:

- Utilization and costs of routine mental health services
- Utilization and costs of antipsychotic agents and other selected drugs
- Psychiatric symptoms, side effects, quality of life and satisfaction with antipsychotic drug therapy

"Schizophrenia has a devastating negative impact on quality of life, not to mention the measurable economic costs," said Jack A. Grebb, M.D., vice president for Clinical Research and Development at Janssen Research Foundation. "Exploring a variety of treatment options that can increase quality of life while decreasing costs will ultimately benefit the patient, family and the community."

One of every one hundred Americans, or two million people, suffers from schizophrenia. The disease often results in hallucinations, delusions, apathy, lack of emotion, and the inability to think clearly. Relapse of acute symptoms is a characteristic and devastating aspect of chronic schizophrenia.

RISPERDAL (risperidone) is a serotonin 5-HT$_2$ receptor and a dopamine D$_2$ receptor antagonist. Approved by the U.S. Food and Drug Administration in December 1993, RISPERDAL has been effective in treating both the positive and negative symptoms of schizophrenia. In addition, the incidence of extrapyramidal motor system side effects has been found to be low among patients treated with RISPERDAL.

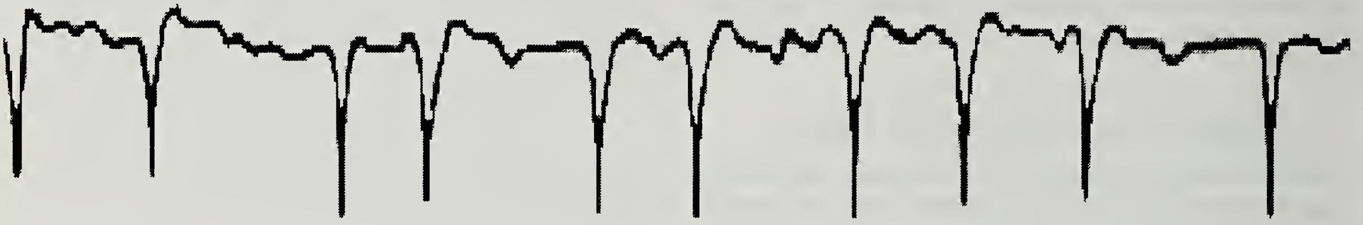
Medical professionals must enroll patients by 31 December 1995.

For more information on this study and to determine if patients meet the criteria, physicians should contact the principal investigator, Bonnie Szareck at (203) 241-8000 (ext. 6752) or call 1-800-679-1867.

THE UNIVERSITY OF CONNECTICUT HEALTH CENTER • 1961 •

CPRO

STROKE PREVENTION IN ATRIAL FIBRILLATION:
Why, When, and How



Presented by

The Department of Medicine
at
The University of Connecticut School of Medicine

in collaboration with

The Connecticut Peer Review Organization

Featured Speakers:

Michael D. Ezekowitz, MD, PhD, FACC
Yale School of Medicine

Louis D. Fiore, MD
Boston University School of Medicine

Martha J. Radford, MD, FACC
University of Connecticut School of Medicine
Connecticut Peer Review Organization

Thursday, December 14, 1995
8:30 am - 12:00 pm

The Ramada Inn
Meriden, Connecticut

The University of Connecticut School of Medicine designates this continuing medical education activity for 3.0 credit hours in Category 1 of The Physician's Recognition Award of the American Medical Association.

A registration form is included on the next page.
For any questions, please call Lori Harris at (203) 632-6341.

Anticoagulation for Prevention of Stroke for Medicare Beneficiaries in Connecticut

Summary of a Report from the Connecticut Peer Review Organization

The Connecticut Peer Review Organization has completed a study of anticoagulation for prevention of stroke in Medicare beneficiaries ≥ age 65 hospitalized during 1994. This study was conducted because of the demonstrated benefit of this therapy: risk of stroke can be decreased by two thirds when anticoagulation is offered to appropriately-chosen patients with atrial fibrillation.

We found that:

- Atrial fibrillation and stroke are common in Connecticut Medicare beneficiaries:
  - 15,000 patients are hospitalized each year with atrial fibrillation.
  - 10% of these patients were also hospitalized with a stroke.
  - More than 20% of all strokes are associated with atrial fibrillation.
- Although relative contraindication to warfarin anticoagulation is common in the elderly, there is evidence that anticoagulation is underutilized. Of patients *without evidence for a contraindication* in their medical record, 38% were on warfarin prior to hospital admission, and 50% were prescribed warfarin at discharge.
- Patients admitted with stroke and atrial fibrillation experience higher hospital mortality than patients admitted with atrial fibrillation without stroke: 16% versus 9%.
- At least 250 strokes could be prevented each year in Connecticut if anticoagulation was more widely considered for Medicare beneficiaries with atrial fibrillation. This medical benefit translates to potential saving of about $12M.

The Connecticut Peer Review Organization and the University of Connecticut School of Medicine are co-sponsoring a symposium to discuss with all practitioners the indications, contraindications, and practical consideration of anticoagulation for patients with atrial fibrillation. We invite your participation in decreasing the risk of stroke for Connecticut citizens with atrial fibrillation.

Martha J. Radford, MD, FACC
University of Connecticut School of Medicine
Farmington, Connecticut 06030

REGISTRATION FORM
(please print)

Name ______________________________

Address ______________________________

City ____________________ State ____________ Zip ____________

Home Telephone (   ) ____________________ Affiliated Institution (   ) ____________________

Specialty ______________________________

Registration fee is $25 and includes cold breakfast. Space is limited so send your registration form in early. Refunds for cancellation will be made if notice is given by December 1, 1995 by calling Lori Harris, (203) 632-6341. Check must accompany registration form. Mail form and check by December 5 to:

Lori Harris
Connecticut Peer Review Organization
100 Roscommon Drive
Middletown, Connecticut 06457

For Someone Who Stutters, Stage Fright Can Be A Way of Life.

Until he conquered his stuttering problem, stage fright was an everyday occurrence for opera's renowned baritone Robert Merrill. Today he has sung on stages around the world.

If you or someone you know stutters, write or call:

National Stuttering Awareness Week
May 8–14

STUTTERING
FOUNDATION
OF AMERICA
FORMERLY SPEECH FOUNDATION OF AMERICA
A Non-Profit Organization
Since 1947—Helping Those Who Stutter
P.O. Box 11749 • Memphis, TN 38111-0749
1-800-992-9392

IN MEMORIAM

BARBOUR, CHARLES, M., McGill University Faculty of Medicine, 1938. Dr. Barbour served as an anesthesiologist at Hartford Hospital from 1946 to 1980, and had been appointed as attending anesthesiologist, a position he held until his retirement. Dr. Barbour was also a member of the medical staff's executive committee. In addition to state and national anesthesiology associations, Dr. Barbour was a member of the Hartford County Medical Association, the Connecticut State Medical Society where he served on the Maternal Mortality and Morbidity Committee from 1962 to 1972, and the American Medical Association. Dr. Barbour died 24 August 1995 at the age of 84.

BASDEN, EDWIN H., Tufts University School of Medicine, 1933. Dr. Basden maintained a private practice in Willimantic for 45 years and served as the health officer of Windham County. He served as assistant medical examiner from 1973 to 1979 and as the medical adviser for Windham, Mansfield, and Columbia schools. Dr. Basden was a member of the Windham County Medical Association and the Connecticut State Medical Society. Dr. Basden died 2 October 1995 at the age of 85.

CAVALIERE, VINCENT J., New York University School of Medicine, 1943. Until his retirement from general medical practice in 1984, Dr. Cavaliere served on the staff of St. Vincent's Medical Center. He was a member of the Fairfield County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Cavaliere died 11 September 1995 at the age of 79.

DOBSON, JOHN P., Columbia University College of Physicians and Surgeons, 1936. Dr. Dobson, a psychiatrist, was a member of the Fairfield County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Dobson died at the age of 85.

EDKIN, ROBERT E., Howard University College of Medicine, 1959. Dr. Edkin, an orthopaedic surgeon, was in private practice in Hartford for 35 years. He served on the staff of St. Francis Hospital and Medical Center, Mount Sinai Hospital, and the University of Connecticut Health Center in Farmington. In addition to the American Academy of Orthopaedic Surgeons and the Eastern Orthopaedic Association, Dr. Edkin was a member of the Hartford County Medical Association, where he served as a delegate to the Connecticut State Medical Society for many years, and the Connecticut State Medical Society. Dr. Edkin died 27 August 1995 at the age of 67.

GEORGAKIS, NICHOLAS G., New York Medical College, 1958. Dr. Georgakis maintained an allergy and immunology practice in Danbury, and also served as an assistant clinical instructor of medicine at Yale University School of Medicine. Dr. Georgakis also specialized in aerospace medicine serving as a senior aviation medical examiner and a federal aviation manager. He was a member of the Fairfield County Medical Association and the Connecticut State Medical Society. Dr. Georgakis died 5 October 1995 at the age of 62.

GRIGAS, JOHN E., Tufts University School of Medicine, 1936. Dr. Grigas was on the attending staff at Greenwich Hospital until 1966 when he relocated to New Jersey. There he served as an emergency room physician at Perth Amboy General Hospital and, for 10 years, as the Medical Director of New Jersey Blue Shield. Dr. Grigas was a member of the Fairfield County Medical Association and the Connecticut State Medical Society. Dr. Grigas died 9 August 1995 at the age of 84.

HAMLIN, CHARLES H. II, Harvard Medical School, 1941. Dr. Hamlin, an obstetrician and gynecologist, maintained a private practice in Glastonbury and at Hartford Hospital for more than 30 years. In addition to many state and national obstetrics and gynecology societies, Dr. Hamlin was a member of the Hartford County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Hamlin died 22 August 1995 at the age of 78.

KAUFMAN, MAURICE, John Hopkins University School of Medicine, 1943. Dr. Kaufman practiced internal medicine and cardiology in Bridgeport from 1948 to 1975. He was senior attending physician at Bridgeport Hospital and president of the hospital's medical staff. Dr. Kaufman was a member of the Fairfield County Medical Association and the Connecticut State Medical Society. Dr. Kaufman died 20 September 1995 at the age of 77.

KEET, JOHN E., State University of New York College of Medicine, 1947. Dr. Keet, retired director of anesthesiology at Waterbury Hospital, also practiced at St. Francis Hospital and Medical Center in Hartford. A member of many professional organizations, he was honored by the Horace Wells Society with its annual award for outstanding contributions in anesthesiology. Dr. Keet was a member of the New Haven County Medical Association and the Connecticut State Medical Society. Dr. Keet died 20 September 1995 at the age of 71.

KESSEL, LEIZOR, Medical College University of Vienna, Austria, 1934. Dr. Kessel was a staff physician at the Veterans Home and Hospital in Rocky Hill retiring in 1975 as assistant to the chief of medicine. Dr. Kessel was a member of the Hartford County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Kessel died 20 September 1995 at the age of 85.

KOLESHKO, LAWRENCE J., University of Maryland School of Medicine, 1942. Dr. Koleshko maintained a private family practice in Waterbury and was associated with both Waterbury and St. Mary's Hospital prior to his retirement in 1994. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Koleshko died 25 August 1995.

KROCHMAL, HENRY, University of Vienna, 1937. Dr. Krochmal maintained a family practice in Meriden for 44 years specializing in allergies. He served for a time on the staff of school physicians in Meriden. Former president of the Meriden Medical Society, Dr. Krochmal was a member of the New Haven County Medical Association, the Connecticut State Medical Society where he served on the Committee to Study Perinatal Morbidity Mortality from 1965 to 1967, and the American Medical Association. Dr. Krochmal died 15 September 1995 at the age of 83.

LEE, J. FREDERICK, Cornell Medical School, 1946. Dr. Lee practiced pediatrics in Greenwich prior to his retirement. He served as director of pediatrics at Greenwich Hospital for several years. Dr. Lee was a member of the Fairfield County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Lee died 9 October 1995 at the age of 74.

LIDZ, RUTH, Medizinische Fakultät der Universität Basel, Switzerland, 1936. Dr. Lidz was a clinical professor of psychiatry at the Yale University School of Medicine since 1965. She was known as a psychotherapist of schizophrenic and other profoundly disturbed patients and a contributor to the scientific literature on the etiology and psychotherapy of schizophrenic disorders. Dr. Lidz was a member of the New Haven County Medical Association and the Connecticut State Medical Society. Dr. Lidz died 9 October 1995 at the age of 85.

NOLASCO, DARIO R., Coimbra University Medical School, Portugal, 1951. Dr. Nolasco, an orthopaedic surgeon in New Haven since 1961 and founding partner of the New Haven Orthopaedic Surgeons, served at Yale-New Haven Hospital and the Hospital of St. Raphael as an attending physician in orthopaedic surgery and served as a clinical instructor at the Yale University School of Medicine. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Nolasco died 19 September 1995 at the age of 70.

ROSNER, FRED, Vienna University School of Medicine, Austria, 1931. Dr. Rosner practiced medicine in New York and Bridgeport from 1941 until 1984 and was associated with Park City Hospital and St. Vincent's Hospital. He was a member of the Fairfield County Medical Association and the Connecticut State Medical Society. Dr. Rosner died 20 September 1995 at the age of 85.

SCHIAVONE, JOHN V., Georgetown University School of Medicine, 1958. Dr. Schiavone, a former radiotherapist at Mount Sinai Hospital, maintained a private family practice in Branford for 15 years. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Schiavone died 9 September 1995 at the age of 63.

SIROTA, HARVEY H., Cambridge University, 1937. Dr. Sirota had an eye, ear, nose, and throat practice in East Hartford from 1950 until his retirement in 1978. He served as chief of the ear, nose, and throat department at the Veterans Administration Hospital in Newington from 1950 to 1968 and on the staff of Hartford Hospital, retiring as department chief in 1978. In 1991 he received the first Community Service Award presented by the Hartford County Medical Association. Dr. Sirota was a member of the Hartford County Medical Association and the Connecticut State Medical Society where he served on the Medical Aspects of Sports Committee from 1981 to 1982. Dr. Sirota died 6 September 1995 at the age of 85.

SPENCER, LEON O., Tulane University School of Medicine, 1926. Dr. Spencer, a retired general practitioner, was a member of the New Haven County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Spencer died 30 May 1995 at the age of 95.

STEGLICH, CARL, Faculdade de Medicina de la Universidade de Coimbra, Portugal, 1948. Dr. Steglich was associated with Stamford Hospital and specialized in radiology and nuclear medicine until his retirement in 1982. He was a member of the Fairfield County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Steglich died 30 July 1995 at the age of 83.

WAUGH, DAVID D., Columbia University College of Physicians and Surgeons, 1933. Dr. Waugh practiced ophthalmology at Sharon Hospital for 32 years and was on the staff of Harlem Valley State Hospital and of Wassaic State School. He was a member of the Litchfield County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Waugh died 7 September 1995 at the age of 88.

CSMS PHYSICIAN PLACEMENT SERVICE

The Society maintains the Physician Placement Service as a *free* service to the medical profession, hospitals, and communities in Connecticut.

***Opportunities* should be typed, double-spaced copy on letterhead and submitted to CSMS, Physician Placement Service, 160 St. Ronan Street, New Haven, CT 06511 (203) 865-0587 or fax to (203) 865-4997. These will be published as space permits and will be distributed to physicians making inquiries of such *opportunities*.**

***Physicians wishing to locate* in Connecticut may call the office requesting opportunities in their specialty. Also, candidates are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.**

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

Announcements on the Physician Placement Service page under Classified Advertising are charged at the regular Classified Advertising rate.

OPPORTUNITIES FOR PRACTICE

AMBULATORY CARE

Physician needed for walk-in medical center. Excellent work environment in a general practice, combining primary care and walk-in trauma. Competitive salary and benefits. Send CV to: CSMS c/o AC/JM.

Ambulatory-care center in southwestern Connecticut seeks physician (BC/BE) for full-time or part-time employment. Well-rounded background in the treatment of acute minor illnesses and injuries required. Excellent patient relations a must. Wonderful community, excellent staff, and pleasant working conditions. Competitive salary and benefit package offered. Please submit CV to: Mr. Louis Basilicato, c/o F.F.M.C., 525 Tunxis Hill Cutoff, Fairfield, CT 06432 and/or call (203) 384-2273.

Physician needed for a walk-in care center in the Vernon area. Part-time position available immediately for weekends and evenings. Please call (860) 871-6939 Monday to Friday between 9:00 A.M. and 3:00 P.M.

FAMILY PRACTICE

Ten-year established ambulatory-care center seeking part-time BC/BE physician two weekdays. Weekend time also available. No nightcall, no management headaches. Opportunity for conventional medical practice also available. Send inquiries to Dr. Ronald Robbins, 842 Washington St., Middletown, CT 06457, or call (203) 346-4484.

Outstanding opportunity for BC/BE family practitioner to join two others on beautiful Connecticut shoreline. Excellent combination of professionally rewarding and personally gratifying life style. Ambulatory practice affiliated with two teaching hospitals. Part-time or full-time. Please respond to: CSMS c/o FP/AW.

Busy family practice in Stamford seeks board certified family practitioner. Full- or part-time in pleasant, well-staffed office. Full, on-site laboratory. Good location. Serving private, medicare, and HMO patients. Hours, salary negotiable. Please call or send CV to: Alan Falkoff, M.D., 838 High Ridge Rd., Stamford, CT 06905, telephone (203) 322-7070.

INTERNAL MEDICINE

Community Health Care Plan (CHCP), Connecticut's oldest staff model HMO has an immediate clinical opportunity for a BC/BE internist to join a progressive, quality driven staff serving a prepaid membership at seven health centers throughout south central Connecticut. This position offers opportunities to teach, join the Yale clinical faculty, and participate on committees developing preventive and managed-care strategies in an environment surrounded by a wide variety of social, recreational, and cultural activities with ski slopes nearby and easy access to New York City and Boston. Salary is commensurate with experience and comes with an attractive benefit package. Please send CV to: Scott Borrus, M.D., Community Health Care Plan, Inc., 150 Sargent Dr., New Haven, CT 06511.

MEDICAL DIRECTOR

Part-time/full-time medical director for ambulatory out-patient rehab center. Responsibilities: order rehab, prescribe physical therapy, perform physicals, order diagnostic clearance exams. No late hours or weekends, low-stress position. Salary $65.00/hour. Call Total Health Center at (203) 656-3636 and ask for McKay.

OBSTETRICS AND GYNECOLOGY

Community Health Care Plan, Inc. (CHCP) is seeking a BE/BC obstetrician/gynecologist for six-doctor/six- midwife OB/GYN team. Well-established staff model HMO with diverse patient population. Clinical appointment with Yale University/Yale New Haven Hospital. Excellent salary and benefits which includes full malpractice coverage, health/life/disability insurance, and 403(b) pension plan. Situated on Long Island Sound, 40 miles from Hartford, 75 miles from New York, and 135 miles from Boston. Accessible via air through commuter service from New York airports to Tweed-New Haven airport, three miles from downtown New Haven. Direct CV or inquiries to: Brenda A. Alexander, Human Resources Representative, CHCP, Human Resources Dept., 221 Whitney Ave., New Haven, CT 06511.

PEDIATRICIAN

BC/BE pediatrician to replace retiring member of group in July 1996. University affiliation, suburban practice in south central Connecticut. Competitive salary and benefits. Contact Dr. Heiger, 420 S. Main St., Cheshire, CT 06410, telephone (203) 272-0396.

PRIMARY CARE

Currently seeking full-time/part-time (IM/FP) BC/BE physician with focus on women's issues to join a multiservice medical facility providing outpatient preventive medicine and primary-care exclusively to women. The medical practice consists of two full-time primary-care physicians, an allergy and asthma specialist, a nurse practitioner in adult medicine and gynecology, a nutritionist with individual weight loss and cholesterol reduction programs, three psychotherapists, ACR accredited mammography, ultrasound, massage therapy, and adjoining laboratory. Women's Care is proud of its comprehensive approach to medical care and health-care maintenance and welcomes you to join our team of health-care professionals committed to women's issues and education. For more information, contact: Caryn Nesbitt, M.D., Medical Director, 85 Poheganut Dr., Groton, CT 06340. Telephone (203)448-6303.

Physician wanted to work part-time in primary care at a university health services setting. No on call, no weekends, no holidays, summers off. Must have own malpractice insurance. Please send CV to: University of New Haven, 300 Orange Ave., West Haven, CT 06516, Attn: Health Services, Paula Cappuccia, Director. For more information call (203) 932-7079.

PHYSICIANS WISHING TO PRACTICE IN THE STATE OF CONNECTICUT

CARDIOLOGY

Available July 1996. Licensed in New York and Massachusetts. Passed National Boards. American Board certified. M.D. at Kaunas University Medical School, Lithuania. Internship and Residency at Beth Israel Medical Center, New York. Fellowship in interventional cardiology at the University of Massachusetts Medical Center. Also trained in TEE and nuclear cardiology. Would like to join a group or associates practice. Please respond to: Alexander Alperovich, M.D., 3 Tiffany Circle, Millbury, MA 01527. Telephone: (508) 797-9698.

GENERAL PRACTICE

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Acute Fatty Liver of Pregnancy Superimposed on Chronic Active Hepatitis

GHAZALI A. KHAN, M.D. AND FRANCES LEWIS, M.D.

THE pregnant woman with jaundice, and the liver diseases that underlie it, is probably more common than previously appreciated. There are instances now frequently identified of pregnancy-related liver diseases of mild form, or with variable presentations. The important disorders to consider in the last trimester of pregnancy are: 1) preeclamptic or eclamptic related liver disease; 2) intrahepatic cholestasis of pregnancy; 3) HELLP syndrome (H=hemolysis, EL=elevated liver enzymes, LP=low platelet count); 4) acute fatty liver of pregnancy (AFLP), or acute fatty metamorphosis of pregnancy. The importance of considering the above differential diagnoses lies in the fact that all are unique to pregnancy, and must in some way be caused by it, and ought to be considered first. Those conditions that pose the most serious threat to the health of the mother or the fetus should be considered first, along with the range of other liver diseases not specific to pregnancy, such as viral hepatitis, cholelithiasis, and the Budd-Chiari syndrome. Rarely, chronic liver disease should be considered only after the pregnancy-specific liver disorders have been excluded.[1,2] We report a case of primigravida with deep jaundice presenting in the late third trimester.

Case Report

A 20-year-old Hispanic primigravida was admitted at 37 weeks of gestation with a three- to four-week history of yellow eyes, dark colored urine, and with symptoms of fatigue, malaise, and nausea. She had no significant past medical or obstetrical history. There was no history of foreign travel. Alcohol abuse or illicit drug use or receiving prior blood transfusions was not reported. There were no symptoms of abdominal pain, headache, or itching. The patient had not received any prenatal screening or care. On presentation to the delivery suite she was alert and oriented. Her vital signs were: pulse 80 per minute, blood pressure 118/70 mm Hg, respiratory rate 14 per minute, temperature 37.6° C with deeply icteric sclerae, and no signs of excoriation or petechiae. On phyical examination there was no peripheral or pedal edema; flapping tremors were not elicited, and there were no clinical signs of hepatic encephalopathy. Abdominal examination was consistent with a 37-week pregnancy. A few hours after admission, she complained of lower abdominal pain with vaginal "spotting."

Laboratory Values

The laboratory testing on admission revealed a white blood cell count of 9,000 cells per cubic millimeter with a normal differential, a hematocrit of 34%, mean corpuscular hemoglobin concentration of 32 g/dL, mean corpuscular volume of 90 per cubic microliter, a reticulocyte count of 7,900 per cubic millimeter, and a platelet count of 71,000 per cubic millimeter. The red blood cells were normocytic and normochromic with some spherocytes and polychromasia, nucleated cells, and a few target cells. There were no schistocytes.

Drug screening, including acetaminophen, was negative.

Clotting studies revealed the following: prothrombin time, 21.5 seconds (control 11 seconds); partial thromboplastin time, 82 seconds (control 20 seconds); reptilase time, 36 seconds (control 16 seconds); factor V, 13% activity (normal 60% to 100%); and factor X, 23% activity; D-dimers >2.5 mg/L.

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The serum electrolyte levels were as follows: sodium, 140 mEq/L; potassium 3.5 mEq/L; chloride, 106 mEq/L; CO_2 content, 21 mEq/L. Other serum chemistry levels: blood urea nitrogen, 32 mEq/L; uric acid, 9.8 mg/dL; calcium, 8.4 mg/dL; phosphate, 2.5; glucose, 51 mg/dL; and cholesterol, 69 mg/dL. The serum amylase was 95 U/L, magnesium, 1.8 mg/dL; and plasma ammonia, 12 μg/dL.

Tests of liver function revealed the following: total bilirubin, 15.6 mg/dL; direct bilirubin, 9.8 mg/dL; aspartate aminotransferase (AST), 72 U/L; alanine aminotransferase (ALT), 26 U/L, with the AST/ALT ratio >2; alkaline phosphatese, 481 U/L; total lactic acid dehydrogenase (LDH), 425 U/L, with the isoenzyme fractionation showing elevation of LDH_2; GGPT, 57 U/L; total serum protein, 3.9 g/dL; albumin, 1.7 g/dL; globulin, 2.2g/dL.

The urinalysis showed a trace of albumin and elevated bilirubin and urobilinogen and a few white and red blood cells.

Delivery and Postpartum Course

Shortly after vaginal spotting she had a precipitous labor, and delivered a healthy male baby vaginally with normal, intact placenta. Forceps were not used. During labor, she developed spontaneous facial and truncal petechiae and epistaxis. The postpartum period was complicated by profound coagulopathy requiring 10 units of packed red blood cells, 30 units fresh frozen plasma, 20 units cryoprecipitate, and 20 units of platelets. Besides transfusions of the blood products, the uterine stimulants, prostaglandin analogues, oxytocics, fundal maneuvers, and massage were also applied. Following postpartum resuscitation, she developed fluid overload with respiratory compromise requiring intubation and ventilatory support. Furthermore, the catastrophic course was complicated by persistent hypoglycemia and oliguric renal failure, which converted to a nonoliguric type after vigorous fluid replacement. Prolonged hypoglycemia responded to intravenous glucose supplementation. Over the next six days, her clinical condition, clotting profile, and renal function improved, and the patient was discharged after one week.

Postpartum Investigation

An abdominal ultrasound examination was performed which revealed a small liver with normal echo, her gallbladder and biliary tract were normal, and there was moderate ascites.

A computed tomographic (CT) scan of the thorax and abdomen revealed a bilateral pleural effusion and ascites. The liver did not show the presence of fat or areas of geographical infarcts. The pancreas was diffusely enlarged. The uterus was subinvoluted with fluid in the endometrial cavity. A liver and spleen Tc 99 scan revealed the liver to be 15 cm in size with normal configuration. There was a marked increased uptake in the bone marrow, and an enlarged spleen, possibly reflecting portal-systemic shunting.

A diagnostic paracentesis was performed revealing amber colored ascitic fluid with 1,800 white blood cells per cubic millimeter, with a differential count of polymorphonuclear cells 70% and lymphocytes 4%; red blood cells 790 per cubic millimeter, glucose 85 mg/dL, protein 0.3 g/dL, amylase 55 U/L. A diagnosis of spontaneous bacterial peritonitis was considered and empirically treated with broad spectrum intravenous aminoglycoside and cephalosporin. Later, ascitic fluid culture was negative.

Hepatitis B surface antigen and surface antibodies, hepatitis C antibodies, studies for cytomegalovirus, antinuclear antibodies, antismooth muscle antibodies, antimitochondrial antibodies, and rheumatoid factor were all negative. Serum levels of alpha-antitrypsin, and serum ceruloplasmin were all within normal range.

A percutaneous liver biopsy showed histologic changes of erosion of the limiting plate with piecemeal necrosis, but without bridging or rosette formation or fibrosis, along with bile stasis, compatible with chronic active hepatitis. Special quantitative liver copper estimations on the liver biopsy were not performed.

Discussion

Clinical cases of jaundice with liver dysfunction in pregnancy present a diagnostic challenge.[1] This 20-year-old patient presented towards the end of gestation, with progressive deep jaundice and with no clinical evidence of preeclampsia. Since her illness began exclusively in the third trimester with hepatic dysfunction and was complicated by disseminated intravascular coagulopathy, hypoglycemia, bacterial peritonitis, oliguric renal failure, and respiratory compromise, the diagnosis of a rare entity, acute fatty liver of pregnancy was considered.[2] AFLP is unique to pregnancy, with no simple diagnostic findings. This disorder takes many forms, along with variability in symptoms, clinical presentation, and laboratory results. It was evident from the onset that the major problem was severe jaundice with life-threatening disseminated intravascular coagulopathy. It was decidedly less clear whether she did, or did not have any previous liver disease. Although there was a biochemical overlap between the HELLP syndrome (H=hemolysis, E=elevated L=liver enzymes, LP=low platelet count) and AFLP (evidence of severe hemolysis with high reticulocyte count, and significant thrombocytopenia), she had no associated features of preeclampsia/eclampsia, or severe microangiopathy on the peripheral smear.[3] A few patients, with otherwise typical AFLP, exhibit marked elevation of serum transaminase values, while others generally have modest abnormalities of liver function tests. The diagnosis of AFLP can therefore be misleading, as it does not reflect the severe degree of hepatic dysfunction. Some AFLP patients have complications of acute liver failure, with prolonged hypoglycemia, impaired synthesis of clotting factors, and hepatic encephalopathy.[4] Persistent pelvic bleeding following delivery is not an uncommon complication in AFLP, attributable to disseminated intravascular coagulation. Petechial hemorrhages and even subconjunctival hemorrhages are often seen as a benign finding after a strong expulsive effort in labor. This was not a consideration here, because the patient's hemorrhages were widespread, and were associated with epistaxis and truncal petechiae, which were due to a severe bleeding diathesis. Persistent and prolonged hypoglycemia was also reported, along with other extrahepatic features of AFLP, which included a variable degree of azotemia with reversible oliguric renal failure. Several mechanisms appear to be responsible for renal compromise in AFLP. Acute tubular necrosis (ATN) and fatty metamorphosis of the renal tubular epithelia have been reported histologically in previous reviews.[4,5] However, prerenal factors, such as hypovolemic shock secondary to massive hemorrhage or dehydration from severe vomiting, could be implicated as the cause of prerenal failure and azotemia. The oliguric renal failure usually takes the form of a hypoperfusion state, with low urinary sodium concentration. In severe cases of renal failure, the true incidence of hepatorenal syndrome is unknown.[6] The hyperuricemia was related to reduced renal clearance of urates, as well as to degradation of nucleic acids released by necrotic hepatocyte, and possible lactic acidosis.[5] Acute pancreatitis of AFLP is generally mild, and was not clinically suspected. There was evidence of diffuse enlargement of the pancreas on the CT scan, which may not support the diagnosis of acute pancreatitis in the presence of normal amylase in the serum and ascitic fluid. The respiratory compromise leading to intubation was a component of ARDS (adult respiratory distress syndrome), which has also been reported in AFLP.[6] It is of interest that the neonate was male, and a preponderance of male offspring has been reported in AFLP, an interesting yet unexplained phenomenon.

The liver biopsy, which remains the gold standard in the assessment of different forms of liver diseases, was interpreted as chronic active hepatitis (CAH) with bile stasis.[1] CAH was of idiopathic variety, in view of the negative work-up for viral and autoimmune factors. Given the wide histologic variability of AFLP, the fatty change, in general, may be inconspicuous even to experienced hepatic histopathologists, mindful of probable diagnosis. Similarly, the interpretation of a biopsy may be difficult, particularly in patients with AFLP, because only a minority of patients demonstrate the classic picture of easily identifiable cytoplasmic microvesicular steatosis, with pleomorphic, and abnormal mitochondria, or fine droplet fat in liver cells in a frozen section stained with oil red-O.[2] In the absence of a high index of suspicion and special stains, the histologic findings can be mistaken for any number of liver diseases such as preeclampsia, viral hepatitis, or obstructive cholangitis. In a review of cases at the Armed Forces Institute of Pathology, it was noted that the histology of AFLP was variable and included cases that could be interpreted as compatible with viral hepatitis.[6] The laboratory parameters in our case argued for severe and chronic liver injury antedating the acute events, and persisting after resolution. The low serum albumin on presentation, although possibly a result of an expansion of the blood volume, may also be a sign of chronic liver disease.[6] Postpartum, the patient continued to have persistent hypoalbuminemia (2.0-2.3 g/dL), while other liver tests (PT, PTT, bilirubin) returned to normal, reflecting impaired biosynthetic function due to chronic hepatocellular disease. No evidence of protein malnutrition, protein-losing enteropathies, or nephrotic syndrome was found to account for the hypoalbuminemia. The low cholesterol level of 69 mg/dL on admission, continued to remain in the same range two months postpartum, again a sign of a chronic process upon which the pregnancy was superimposed. A liver-spleen Tc 99 scan suggested portal hypertension with colloid shift, and splenomegaly with increased uptake in the bone marrow. Chronic active hepatitis, by definition, is characterized by the persistence of symptoms and signs of liver disease, and/or abnormal LFTs for a period exceeding three months. The patient presented with a prodromal period of one month of malaise and jaundice, supporting the insidious onset of a chronic process. Conversely, it may be argued that she did not have documented liver disease of several months duration, or other features of CAH in the preceding months. Pregnancy in women with CAH has been the subject of considerable inquiry.[7] Most women with serious liver disease are infertile, because of the associated anovulatory state, making primary liver disease much more unlikely than liver disease directly associated with pregnancy. What is perplexing is that this patient managed to maintain her pregnancy, when fertility appears to be decreased in women with significant liver dysfunction. Women with liver dysfunction rarely become pregnant, and they have an increased rate of stillbirth.[8] Hepatic complications of CAH during pregnancy are infrequent and relapses, when they occur, demonstrate no consistent patterns of alteration in standard liver function tests. It is possible that she had a mild form of CAH, which may resemble chronic persistent hepatitis (CPH), usually considered a benign condition. The correct diagnosis of CPH often requires several months to years of follow-up, with multiple liver biopsies.[8] However, if a mild form of CAH is present, it is then difficult to explain the clinical manifestations and the various complications of acute hepatic failure which occurred. One can argue that regardless of pregnancy, a 20-year-old patient presenting with hepatic dysfunction, hemolysis, jaundice, and is found to have chronic active hepatitis on liver biopsy, may raise a suspicion of Wilson's disease. As serum ceruloplasmin was normal in this patient, quantitative liver copper estimation studies were not performed.

In summary, this was a case of a young primigravida, who presented in late gestation with deep jaundice and clinical features of acute fatty liver superimposed on chronic liver disease. Subsequently, she had complications of acute fatty liver, with disseminated intravascular coagulation, acute pancreatitis, oliguric renal failure, and hypoglycemia. The liver biopsy revealed histological changes of chronic active hepatitis, with bile stasis. Chronic liver process was also suggested by the biochemical parameter of persistent and prolonged hypoalbuminemia pre- and postdelivery, along with abnormal liver, spleen Tc 99 scan. This case, as well as a review of the literature, illustrates that the histologic findings are diverse and cover a broad spectrum, and may be easily misinterpreted.[9] Reports in the literature indicate that the high maternal mortality rate, initially reported in AFLP, may no longer be the rule, and that AFLP is more common than previously thought, with a broad clinical spectrum, including asymptomatic patients.[1] Her clinical recovery was undoutedly due to early recognition and prompt treatment, and was in conformity with the general rule of improvement in patients with AFLP. The patient's symptoms gradually resolved along with signs of recovery (decrease in transaminase level, and a return toward normal prothrombin time) within a week of delivery.[6] Our case had typical clinical features of AFLP, yet was not so diagnosed histologically.

We emphasize in this report the multifaceted disease of AFLP, presenting with other features of chronic liver disease. This presentation focuses on acute hepatic disorders of pregnancy, along with their subtlety and variability, and the importance of a high index of suspicion in conjunction with timely action.

Acknowledgement

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Dementia: Diagnosis and Evaluation

KEVIN C. FLEMING, M.D., ANDREA C. ADAMS, M.D.,
AND RONALD C. PETERSEN, PH.D., M.D.

- ***Objective:*** **To describe an approach to the diagnosis of dementia based on effective assessment methods.**
- ***Design:*** **We reviewed the literature and summarized the available diagnostic and prognostic studies of dementia that may be useful to the primary-care physician.**
- ***Results:*** **Although controversy exists about certain aspects of the diagnostic workup, exclusion of potentially reversible causes of dementia is essential. Laboratory studies (for example, for detection of underlying metabolic abnormalities) and neuroimaging of the brain may be useful. The pattern of onset and the temporal course of the disease may suggest a cause and help direct the investigation. Functional losses can substantially impair the patient's ability to live independently.**
- ***Conclusion:*** **Dementia can be mistakenly considered as part of the normal aging process, and diagnosis necessitates a thorough, although not exhaustive, approach. Early identification of dementing illnesses improves the outcome for reversible disease and may also enhance the management of incurable dementias.**

DEMENTIA is a major health problem among older adults that becomes increasingly common with advancing age. Although the incidence has remained stable in the United States, the burgeoning population of elderly persons has resulted in a substantial increase in the number of cases of dementia. Dementia affects 3% to 11% of community-dwelling adults older than 65 years of age. The prevalence among those older than 85 years ranges from 20% to 50%[1-4] with fewer cases among community-dwelling elderly persons and a greater presence among hospitalized and institutionalized residents. Among centenarians, almost 60% reportedly demonstrate dementia.[5] Clinicians, however, fail to detect dementia in 21% to 72% of affected patients, especially early in the course of disease,[6] or may dismiss true cognitive impairment as normal aging.

Cognitive decline can severely diminish the possibility of independent living and is one of the main causes of disability and institutionalization among elderly persons.[7] Personal care, performance of housework, management of financial affairs, and driving skills become increasingly impaired. In addition, patients with dementia are at increased risk for delirium[8] and functional losses due to illness or medications. Care of a cognitively impaired elderly person can impose a considerable psychosocial and economic burden.

Definitions

Dementia is a syndrome characterized by an appreciable deterioration of cognition in an alert person that results in impaired performance of daily activities. Deterioration is not necessarily diffuse or "global" but is often multifocal, affecting multiple domains of intellectual function while sparing others.[9,10] Dementia is an acquired

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disorder with evidence of decline in memory and intellectual skills from a previous level of function, as demonstrated by history or cognitive testing.[11] At least two domains of function, one of which is memory, are affected; language, perception, visuospatial function, calculation, judgment, abstraction, and problem-solving skills may all become impaired. As a result, social, occupational, and functional abilities can deteriorate.

Simple diagnostic criteria for dementia, regardless of the cause, have been established by the World Health Organization (Table 1). This definition excludes preexisting intellectual impairments (for example, mental retardation), acute confusional states (delirium), and conditions that prevent adequate assessment (such as sensory impairment or severe aphasia). Impairment in the activities of daily living (ADLs) must result from cognitive deficits and not from physical dysfunction (for example, hemiparesis from stroke). Psychologic conditions such as delusions, hallucinations, and depression are common in dementing illnesses and are not excluded.

Standard clinical diagnostic criteria for Alzheimer's dementia have been described in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders*[9] (DSM-IV) (Table 2). Research criteria were established in 1984 by the joint task force of the National Institute of Neurological and Communicative Disorders and Stroke and the Alzheimer's Disease and Related Disorders Association (NINCDS-ADRDA)[13] to refine the diagnosis of Alzheimer's disease (AD) after another condition was found at autopsy in 20% or more of cases of clinical AD. The NINCDS-ADRDA diagnostic criteria use clinical and pathologic findings for further classification of possible, probable, or definite AD.

Classification of vascular dementia has been hindered by differences in terminology and diagnostic criteria. Additional difficulties arise in determining whether the presence of a stroke in a demented patient is causative, contributory, or unrelated to the underlying cognitive impairment. The World Health Organization diagnostic criteria for vascular dementia are summarized in Table 3. Vascular dementia encompasses neuropathologic changes that result from hemorrhage, ischemia, and hypoxic-ischemic cerebral lesions (for example, cardiac arrest). Cases resulting from pure asphyxia, respiratory failure, and carbon monoxide or cyanide poisoning are excluded.[11]

Mild cognitive impairment is a condition characterized by memory impairment that is beyond normal limits in alert persons. Typically, performance on memory testing declines more than 1.5 standard deviations below age-appropriate norms.[14] Such patients do not meet the DSM criteria for dementia because only memory is impaired, whereas other measures of cognitive function are reasonably well preserved and no deficits in ADLs are noted. Results from the Framingham cohort suggest that changes in memory are among the earliest harbingers of AD and that these cognitive deficits can be detected at least seven years before diagnosis, representing a preclinical phase of AD.[15] The literature suggests that between 63 and 80% of patients with mild cognitive impairment will have progression to dementia.[16,17]

Table 1.—World Health Organization (ICD-10) Diagnostic Criteria for Dementia*

Classification	Description
G1.1	A decline in memory, which is most evident in the learning of new information; in more severe cases, recall of previously learned information may also be affected. The impairment applies to both verbal and nonverbal material
G1.2	A decline in other cognitive abilities characterized by deterioration in judgment and thinking, such as planning and organizing, and general processing of information. Deterioration from a previous level of performance should be established
G2	Preserved awareness of the environment (that is, the absence of clouding of consciousness) during a period long enough to enable the unequivocal demonstration of G1. When episodes of delirium are superimposed, the diagnosis of dementia should be deferred
G3	A decline in emotional control or motivation, or a change in social behavior, manifested as at least one of the following: emotional lability, irritability, apathy, coarsening of social behavior
G4	For a confident clinical diagnosis, criterion G1 should have been clearly present for at least 6 mo; if the period since the manifest onset is shorter, the diagnosis can be only tentative

*ICD-10 = International Classification of Diseases, 10th edition. From Wetterling and associates.[12] By permission.

Delirium (also known as acute confusional state) is a primary disorder of attention that subsequently affects all other aspects of cognition.[18] The syndrome is characterized by the abrupt onset of inattention, variable psychomotor activity (from lethargy to hypervigilance), disorganized sleep-wake cycles, and global cognitive impairment, which are fluctuating features. The clinical picture, while protean in manifestation, usually indicates a serious underlying medical illness (for example, infection, myocardial infarction, or drug toxicity) with increased mortality. Delirium can be mistaken for dementia, a problem that

Table 2.—DSM-IV Diagnostic Criteria for Alzheimer's Dementia*

A. The development of multiple cognitive deficits manifested by both

   1. Memory impairment (impaired ability to learn new information or to recall previously learned information)
   2. One (or more) of the following cognitive disturbances:
      a. Aphasia (language disturbance)
      b. Apraxia (impaired ability to perform motor activities despite intact motor function)
      c. Agnosia (failure to recognize or identify objects despite intact sensory function)
      d. Disturbance in executive functioning (that is, planning, organizing, sequencing, abstracting)

B. The cognitive deficits in criteria Al and A2 each cause severe impairment in social or occupational functioning and represent a major decline from a previous level of functioning

C. The course is characterized by gradual onset and continuing cognitive decline

D. The cognitive deficits in criteria A1 and A2 are not due to any of the following:

   1. Other central nervous system conditions that cause progressive deficits in memory and cognition (for example, cerebrovascular disease, Parkinson's disease, Huntington's disease, subdural hematoma, normal-pressure hydrocephalus, brain tumor)
   2. Systemic conditions known to cause dementia (for example, hypothyroidism, vitamin B_{12} and folic acid deficiency, niacin deficiency, hypercalcemia, neurosyphilis, HIV infection)

E. The deficits do not occur exclusively during the course of a delirium

F. The disturbance is not better accounted for by another axis I disorder (for example, major depressive disorder, schizophrenia)

*DSM-IV = *Diagnostic and Statistical Manual of Mental Disorders,* 4th ed; HIV = human immunodeficiency virus.
From the American Psychiatric Association.[9] by permission.

may delay the correct diagnosis of the illness.[8] Conversely, an underlying dementia is a significant risk factor for the development of delirium.[19] Nevertheless, the diagnosis of dementia must be deferred in the presence of an acute confusional state. A detailed review of delirium is presented elsewhere in this symposium.[20]

Etiologic Factors

The classification of dementia stratified by cause is shown in Table 4. AD accounts for more than 60% of the cases of dementia, and vascular dementia is the second leading cause, accounting for an estimated 5% to 20% of cases.[11,21,22] In Japan, vascular disease is thought to be the most common cause of dementia, accounting for 50% of cases.[23] Multiple causes of dementia may coexist. Indeed, cerebrovascular disease can worsen the cognitive impairment of AD.[11]

The NINCDS-ADRDA task force determined that the diagnosis of probable AD, the highest level of clinical certainty possible without histologic confirmation, necessitates evaluation for potentially reversible intracerebral or systemic causes of dementia. An estimated 10% to 20% of patients with dementia have a potentially reversible condition, such as drug intoxication, depression, or a metabolic disturbance.[24] Although symptoms may be reversed only partially, the effect of additional disabilities should be diminished whenever possible.

Risk Factors

Of the major risk factors for dementia, definite factors include advanced age, family history, and apolipoprotein E status. Several other factors have been suggested but are controversial. Because the prevalence of dementia increases with age, advanced age is clearly a risk factor. From ages 65 to 85 years, the prevalence of AD doubles approximately every five years.[25] Kokmen and colleagues[26] found that the incidence of dementia increases sharply with advancing age, reaching a high of 2,922 per 100,000 in the age-group 85 years or older. The risk for development of AD among first-degree relatives of patients with AD is increased fourfold over that in the general population at any age.[27]

The apolipoprotein E gene (APOE) has been implicated as a risk factor in AD.[28] The presence of the APOE ϵ4 allele correlates with the prevalence[29] and age at onset[30] of AD. Subjects who are homozygous for the ϵ4 allele have an earlier onset of AD than those with one copy of the allele, whereas those with no copies have an even older age at

Table 3.—World Health Organization (ICD-10) Diagnostic Criteria for Vascular Dementia*

Classification	Description
G1	Evidence of dementia of specified level of severity
G2	Unequal distribution of deficits in higher cognitive functions, with some affected and others relatively spared. Thus, memory may be profoundly affected, whereas thinking, reasoning, and information processing may show only mild decline
G3	Focal brain damage is evident, manifest as at least one of the following; unilateral spastic weakness of the limbs, unilateral increased tendon reflexes, an extensor plantar response, pseudobulbar palsy
G4	The history, examination, or tests disclose severe cerebrovascular disease, which may reasonably be judged to be etiologically related to the dementia (history of stroke, evidence of cerebral infarction)

*ICD-10 = International Classification of Diseases, 10th edition. From Wetterling and associates.[12] By permission.

onset. A recent study demonstrated that, for patients with mild cognitive impairment, possession of the APOE ϵ4 allele is an important predictive variable for development of AD.[14] The correlation between APOE status and clinical outcome is imperfect, however, inasmuch as AD does not develop in all subjects with the ϵ4 allele, and not all patients with AD have the ϵ4 allele. Of importance, the presence of the APOE ϵ4 allele is a risk factor and not a diagnostic test.

Whether a history of head trauma, episodic depression, or personality disorder also increases the risk for cognitive impairment in elderly patients is debated.[31,32] In a limited number of kindred, autosomal dominant transmission of known mutations on chromosome 21 and, in some families, mutations on chromosome 14 have been associated with AD.[25,33]

Differences of opinion exist about socioeconomic variables as risk factors for development of dementia. Limited education has been associated with a greater risk of AD and has been suggested as a risk factor for dementia.[34,25] Education, however, introduces a psychometric bias that can lead to misclassification of normal subjects as cognitively impaired, particularly among those with fewer than nine years of education. A recent study that related education, occupation, and gender found that subjects (especially women) with a limited education and unskilled occupations (for example, nonprofessional, nonmanagerial, and blue collar occupations) were at greater risk for vascular dementia and, to a lesser degree, AD.[35] This increased risk may be due to a loss of synaptic reserve (with higher education stimulating neuronal growth and thereby exerting a protective buffer against synaptic loss),[36] an inherited predisposition to both higher synaptic reserves and higher education,[37] poor education interfering with test-taking, or poor medical care and unhealthful lifestyles that increase the risk of ischemic vascular disease or lifetime exposures to brain damage among those of lower socioeconomic status.[38,39]

Diagnosis

***History.*—**The evaluation of dementia begins with elicitation of a thorough medical, neurologic, and psychiatric history. Distinguishing AD from other dementing conditions or normal aging can be difficult; therefore, the diagnosis should not be based on a single test or questionnaire.

Clinical pattern.—The pattern of onset and temporal course of the disease may suggest a cause and can help direct the investigation. An insidious, slowly progressive course is consistent with a degenerative process, whereas more abrupt or stepwise changes suggest a vascular component. In practice, however, such discrete episodes of decline may be difficult to identify and need not be detected for a diagnosis of vascular dementia. A gradual cognitive decline after one or more clinical events (for example, after severe illnesses) is common. When the diagnosis of cognitive decline or dementia is being considered, historical information should be obtained from a knowledgeable informant whenever possible, rather than relying on the patient (whose memory is in question) or merely confirming the respondent's answers with a caregiver.

An acute (days to weeks) or subacute (weeks to months) course may suggest the presence of an infection, a metabolic disorder, an expanding mass lesion, or the effects of medication, stroke, or hydrocephalus. In contrast, rapid or abrupt deterioration with inattention, disorganized thinking, and a fluctuating course usually indicates an acute confusional state or delirium. As previously mentioned, the diagnosis of dementia should be deferred until the confusional episode has been promptly and adequately evaluated.

Changes in cognition.—Most patients with dementia have memory loss at the time of initial assessment. Less frequently, other focal changes in cognition prevail—which, if gradually progressive, may still represent a degenerative process.[40] Initially in AD, recent memory is lost, whereas remote memories and overlearned tasks are preserved. Memory loss then progresses to involve remote memories and other cognitive and behavioral functions. Abnormalities in language and visuospatial function be-

Table 4.—Classification of Dementias by Cause
Degenerative
Alzheimer's disease
Frontotemporal atrophy without Pick bodies
Huntington's disease (chorea)
Lewy body disease (paralysis agitans)
Parkinson's disease
Pick's disease
Progressive supranuclear palsy
Spinocerebellar degeneration
Vascular
Binswanger's disease
Cardiac disorders
Vasculitis of central nervous system
Delayed effects of irradiation
Hemorrhage (subdural hematoma, subarachnoid hemorrhage, cerebral hematoma, vascular malformations)
Hypoperfusion (cardiac arrest, profound hypotension, watershed ischemia)
Multiple infarcts (amyloid angiopathy, large complete infarcts, lacunae of the basal ganglia and pons, frontal white matter lacunae)
Strategic single infarct (thalamic, posterior cerebral artery, bilateral carotid occlusion, parietal infarct)
Senile leukoencephalopathy (also related to amyloid angiopathy)
Mixed—Vascular and Alzheimer's
Infectious
Bacterial meningitis (chronic or partially treated)
Whipple's disease of central nervous system
Creutzfeldt-Jakob disease
Fungal or tuberculous meningitis
Neurosyphilis
Viral encephalitis (herpes, human immunodeficiency virus [HIV])
Inflammatory
Demyelinating disease (for example, multiple sclerosis)
Limbic encephalitis
Lupus erythematosus
Sarcoidosis
Sjogren's syndrome
Neoplastic
Carcinomatosis, meningeal lesions
Primary tumors (frontal globe or corpus callosum gliomas)
Metastatic lesions
Traumatic
Hypoxemic anoxia (respiratory failure, pure asphyxia)
Subdural hematoma
Traumatic brain injury
Toxic
Alcohol
Heavy metals (arsenic, lead, mercury)
Histotoxic anoxia (carbon monoxide, cyanide)
Medications (anticholinergic, antihistaminic, polypharmacy)
Metabolic
Vitamin B_{12} or folate deficiency
Cushing's disease
Hypopituitarism
Parathyroid disease
Porphyria
Thyroid disease (hyperthyroidism, hypothyroidism)
Uremia
Wilson's disease
Psychiatric
Depression
Hydrocephalus
Nonobstructive versus obstructive
Normal pressure

come evident as cognition declines. The ability to calculate, to perform skilled tasks, and to comprehend stimuli also deteriorates.

Language skills, including both expression and comprehension, become increasingly impaired. Speech can become increasingly nonfluent, eventually resulting in a terminal state of near-mutism. Problems arise in managing money, comprehending written material, and recognizing people. Driving, operating appliances, and dressing become difficult. Overall, the capacity to reason, to learn new information, and to solve problems is progressively lost.

In mild cognitive impairment, patients often complain of memory loss. Results of formal cognitive evaluations, however, such as the Mini-Mental State Examination (MMSE) or the Wechsler Adult Intelligence Scale—Revised, are within normal range. Subjects with mild cognitive impairment demonstrate difficulty only with specific memory components of cognitive tests. Although in most of these patients dementia will develop during the succeeding few years, a subset may remain mentally stable for many years and may represent a variant of normal.

Changes in function.—Key features in the clinical manifestations of dementia include losses in the ability to perform personal care tasks and changes in social functioning. Family, caregivers, and other knowledgeable sources should be interviewed about any changes in the ability to manage ADLs and should be asked to substantiate the history obtained from the patient. Whenever possible, this process should be accomplished separately from the patient interview, in order to avoid ignoring patient responses and reducing participation by the patient. An assessment of the patient's ability to perform ADLs independently is important. Careful attention should be paid to any changes or deterioration from a former level of function. Further questioning should disclose information about the timing and circumstances regarding any functional losses.

Changes in personality and behavior.—Personality and behavioral changes are often early and prominent signs of dementing illnesses, and the consequences are among the most disabling. Common personality changes include pronounced indifference, regression, impulsiveness,[41] and withdrawal. Lack of insight, impaired planning and judgment, and signs of disinhibition occur in many types of dementia. Problem behaviors include agitation, aggression, restlessness, wandering, delusions, paranoia, hallucinations, and sleep cycle disturbances.[42] The presence of certain behaviors may predict the severity of disease and the rate of progression.

Other historical features.—Family history, drug and alcohol use, and past medical history of systemic illnesses should be explored. Risk factors for stroke should be elicited, including a history of previous stroke, transient ischemic attacks, hypertension, coronary artery disease, and atrial fibrillation. Information about the patient's occupation or hobbies (especially any changes from a former level of function) may provide important clues about toxic exposures as well as an estimate of the effect of the illness on social and occupational function. Those who know the patient well can confirm the responses of the patient and provide additional clues about the timing and progression of memory or behavior problems, personality changes, and dysfunction at work.

Neurologic Examination.

Mental Status Testing.— Assessment of the patient's mental status is essential. Without adequate evaluation of cognition, early or mild dementia may remain undetected.[43] Patients with dementia may retain sufficient social skills to allow simple conversational interviews without demonstration of impairment,[6] by relying on overlearned phrases or vague responses to compensate for knowledge deficits. Cognitive testing should examine memory, ability to calculate, language, visuospatial skills, and degree of alertness.

Testing may be difficult to perform in patients with impaired hearing or vision, deficits that can resemble dementia. Although a hearing loss may increase the patient's likelihood of cognitive impairment,[44] the inability to understand oral information can result in lower estimates of cognitive status in both demented and nondemented subjects.[45] Attempts should be made to minimize the effects of vision and hearing losses on testing (for example, by use of eyeglasses, larger print, or a pocket amplifier). Slower responses and increased time needed to complete testing may be further clues to the presence of dementia, inasmuch as speed of performance can be a measure of cognitive status. These findings are only supportive evidence, however, because most bedside evaluations are not timed tests, and slowed responses may also be due to inattention (for example, from delirium or depression), hearing loss, or motor difficulties (such as those associated with Parkinson's disease or a stroke).

Cognitive screening of the general geriatric population is not useful because the overall yield is low and the false-positive rate is relatively high.[46] Because cognitive impairment is often unrecognized in older patients, because screening tests are brief and simple and do not require a physician for administration, and because periodic testing over time can reduce the false-positive results, one could argue for the cognitive assessment of most older adults. Targeting mental status testing to selected high-risk groups, however, can substantially improve the yield and is our recommended approach. Cognitive screening is recommended for persons older than 80 years of age, persons moving into new living situations (for example, assisted-living units or long-term care facilities), and older adults with a history of delirium, depression, diabetes, Parkinson's disease, or recent unexplained functional losses.[22,34] Mental status testing is also recommended for elderly outpatients before they undergo an elective operation[47] and elderly inpatients on admission to the hospital.

Brief Screening Tests.—Simple assessment of orientation in three spheres (person, place, and date) is ineffective for diagnosing or excluding dementia.[48] For other brief screening tests (such as serial sevens, recall of three items, and the forward digit span), normal results decrease the probability that dementia is present; however, abnormal results only moderately increase the odds of disease.[34] Clock-drawing is useful for assessing the visuospatial and construction deficits commonly associated with dementia.[49-51] Abnormal drawings include those with counterclockwise rotation, inappropriate numbering (especially perseveration), and irrelevant patterns. According to Siu,[34] normal clock-drawing moderately decreases the probability of the presence of dementia, and clearly abnormal patterns only moderately and variably increase the likelihood of dementia. These visuospatial measures correlate with the severity of disease but do not distinguish between AD and vascular or other types of dementia;[52] results can be normal despite major cognitive impairment. Siu[34] concluded that these brief cognitive tests are not ideal for screening and, when performed in combination, are best used to determine the need for additional cognitive testing.

Formal Cognitive Testing.—The MMSE[53] is the most widely used cognitive screening test. This 30-point measure is adequate for detecting cognitive impairment, establishing a baseline, and measuring mental decline over time.[54] Although scores may be influenced by language, socioeconomic status, and ethnicity, age and education have the greatest effect on the result.[55] MMSE scores show an age-related decline that accelerates after the age of 75 years and is independent of educational level. Frequently, however, fixed cutoff scores overestimate dementia in older normal persons. As previously mentioned, education likely represents both a psychometric bias and a risk factor in AD.

The interpretation of the MMSE has often involved only one cutoff value (that is, scores of less than 24 are considered abnormal). Siu,[34] however, found that using more than one cutoff value increased the clinical utility of the test. MMSE scores of less than 21 signify an increased probability of cognitive impairment, whereas scores of more than 25 indicate a decreased chance of having dementia. Intermediate scores of 21 to 25 are less useful in determining the probability of this disease. Various scoring methods for the MMSE are outlined in Table 5. Problems with the MMSE include its lack of sensitivity to mild cognitive impairment and its failure to distinguish between normal subjects and those with mild AD. The MMSE has limited utility in assessing progressive impairment in severe AD. In addition, the visuospatial content and language assessment in the MMSE may be insufficient for detecting impairments caused by focal lesions.[54]

Table 5.—Scoring Methods for the Mini-Mental State Examination

Method	Score (total = 30)	Interpretation
Single cutoff	<24	Abnormal
Range[34]	<21	Increased odds of dementia
	>25	Decreased odds of dementia
Education*[56]	<21	Abnormal for 8th grade education
	<23	Abnormal for high school education
	<24	Abnormal for college graduates
Severity[54]	24-30	No cognitive impairment
	18-23	Mild cognitive impairment
	0-17	Severe cognitive impairment
Age-specific norms†[57]		

Age (yr)	Score Median	Score Range	Percentile Upper 75th	Percentile Lowest 25th
40-49	30	28-30	30	29
50-59	29	25-30	30	28
60-69	29	25-30	30	28
70-79	29	26-30	30	28
80-89	27	24-30	29	26

*Those with less than 8th grade education excluded.
†Cutoff score recommended at lowest 25th percentile.

The Short Test of Mental Status, devised by Kokmen and colleagues,[58] is a 38-point examination that assesses areas of cognition similar to the MMSE but in somewhat greater depth (see Appendix I for overview of test and scoring instructions). Scores of less than 29 are abnormal and suggest dementia. Siu[34] found that scores of less than 22 are highly predictive of the presence of dementia, whereas scores of more than 33 greatly decrease the chance of this diagnosis. Unlike the MMSE, intermediate values are useful as an indication of increasing or decreasing probability of dementia.

Of note, dementia can still be present despite a "normal" score on cognitive assessment. This outcome is more likely in younger patients and in those with more advanced education. Subjects with evidence of personality changes, social dysfunction, and occupational or functional decline warrant further investigation, even if the results of mental status testing are normal.

Physical Examination.—Abnormalities detected on the physical neurologic examination may suggest the cause of a patient's dementia. Because physical findings do not fully distinguish among the various causes of dementia, correlation with clinical and laboratory data is necessary. The findings on examination are usually normal in early AD, although primitive reflexes (such as glabellar, grasp, and snout) may be present.[59] Hearing loss from central auditory dysfunction (for example, sentence misidentification in a background of competing speech) reflects abnormal cortical processing and can resemble the more common peripheral (cochlear) hearing loss of presbycusis without formal testing. Unlike presbycusis, however, central auditory dysfunction is more common with even mild cases of AD.[45] Further auditory assessment is recommended for those in whom dementia is suspected.

Patients with vascular dementia may demonstrate focal findings such as hemiparesis, asymmetric deep tendon reflexes, a unilateral extensor plantar response, or visual field deficits. For many patients, however, findings on the neurologic examination are normal or nonspecific. Some patients with vascular dementia have transient neurologic symptoms, gait abnormalities, and incontinence at the time of initial assessment.[22] In advanced cases, pseudobulbar palsy (involuntary laughing or crying) may be evident.

The presence of tremor and abnormalities in muscle tone or rapid alternating movements suggest a disorder of the basal ganglia. Extrapyramidal signs (bradykinesia and rigidity) in conjunction with gait disturbances can be found in parkinsonism, progressive supranuclear palsy, or AD as the severity increases. Although isolated extrapyramidal signs occur in both AD and normal aging (for example, masked face, resting tremor), rigidity, bradykinesia, and abnormal speech and posture (especially in combination) are much less common in normal elderly subjects.[60] Sensory findings (such as a peripheral neuropathy) may implicate an underlying metabolic or toxic condition. Gait abnormalities, impaired vibration or position sense, spasticity, and paresthesias may be found in subjects with vitamin B_{12} deficiency. Evidence of ataxia, nystagmus, and lateral gaze palsy may suggest underlying alcohol-related dementia.

Normal-pressure hydrocephalus (NPH) is characterized by the triad of a gradual onset of cognitive impairment, pronounced gait disturbance, and urinary incontinence. Subjects who have this classic triad, or who have onset of impaired gait before dementia, have the best surgical outcome.[61-63] Creutzfeldt-Jakob disease is suggested when generalized myoclonus (with a prominent startle response), motor disorders, and a rapidly progressive dementia are present.[21] Of importance, the neurologic examination may show only nonspecific findings, even in the presence of a brain tumor or other focal and structural lesions.[64]

In patients with probable vascular dementia, cardiovascular abnormalities may be important indicators of the cause. Evidence of hypertension, dysrhythmias (for example, atrial fibrillation), peripheral vascular disease (such as carotid bruits), valvular disease, congestive heart failure, or diabetes should be noted for possible intervention to prevent progression or contributory impairments. In addition, a patient's nutritional status should be determined by recording a baseline weight and seeking evidence of weight loss (common in late stages of dementia).

***Psychiatric evaluation.*—**Depression and other mood disorders can impair cognitive function, even in the absence of an underlying dementing process. In some patients, depression can result in a dementia that is reversible (that is, not a "pseudodementia"). In older adults with depression, complaints of memory loss can be prominent, often disproportionate to the actual deficit. Although investigators have suggested that patients with dementia are not similarly concerned about or do not recognize memory impairment, this guideline is unreliable because patients with mild cognitive impairment or in the early stage of a dementing process are often acutely aware of cognitive deficits.

Depression and dementia are both common—and may coexist—in elderly patients, especially in the initial stages of degenerative dementias. When the diagnosis of dementia is suspected, the patient should undergo assessment for depression. Similarly, dementia should be considered when depression is diagnosed in an elderly person.

Psychiatric symptoms such as withdrawal, paranoia, and anxiety are frequent and early signs of AD.[65] Accordingly, an underlying dementing process may be considered in older patients who have these symptoms. Depression and delusions are common in patients with vascular dementia, and "emotional incontinence" can be found in advanced stages.[66] Pick's disease should be considered when personality changes, disinhibited behaviors, social withdrawal, and lack of insight are early and prominent changes in a dementing process.[21]

***Neuropsychologic evaluation.*—**In selected patients, neuropsychologic testing can be helpful and may be necessary for the diagnosis of cognitive decline. In most cases, these more exhaustive evaluations are unnecessary.

Formal testing is recommended when dementia is suspected clinically, but the results of the initial evaluation are usually equivocal or the diagnosis is unclear. Neuropsychologic assessment can be useful in distinguishing depression from dementia and a diffuse process from a focal one. Patients with complaints of memory loss despite normal or equivocal findings on screening can undergo assessment for mild cognitive impairment with the intensive memory components of formal cognitive studies.

Testing can provide additional data when decisions about driving, occupation, safety, and competence must be made. Baseline studies are important in determining prognosis and in assessing response to medications (especially those given for nondementing conditions). Recently, normative data on commonly used neuropsychologic tests have become available to assess performance in older subjects (up to 100 years of age).[67] These evaluations are also useful in documenting the presence and severity of cognitive impairment after traumatic brain injuries and stroke and in determining the rehabilitation potential for any patient with cognitive or speech impairment.[68,69]

Laboratory evaluation.—Laboratory testing is performed to exclude treatable or reversible causes of dementia. Although a detailed evaluation is usually suggested, the clinical utility of performing a standard battery of laboratory tests in all patients has not been established. In one published series,[70] 5% of elderly outpatients with suspected dementia had underlying metabolic abnormalities (hypothyroidism [in 3%], hyperparathyroidism, hyponatremia, or hypoglycemia) that were thought to have produced or contributed to the cognitive impairment. Blood chemistry profiles, complete blood cell counts, thyroid function tests, and erythrocyte sedimentation rate provide a reasonable yield in identifying certain nondementing medical conditions, common in older persons, that can worsen cognitive and functional impairment.[70] If risk factors for acquired immunodeficiency syndrome (AIDS) are present, testing for the human immunodeficiency virus (HIV) is prudent. Specialized investigations based on clinical suspicion can include drug screening, a collagen vascular profile, and urinalysis for heavy metals.

Screening all demented patients for cobalamin deficiency is expensive and has a low yield.[70] The likelihood of cobalamin deficiency is substantially decreased, but not excluded, by a normal hematocrit and mean corpuscular volume. The cobalamin level should be determined in subjects with evidence of anemia or macrocytosis or, in the absence of these changes, when symptoms or physical findings suggest vitamin B_{12} deficiency. Anemia almost always accompanies dementia caused by folate deficiency.[70] Low folate levels may reflect protein-calorie malnutrition related to inadequate intake of food in subjects with late stages of dementia. As such, determination of serum levels of folate may be necessary only when dementia and anemia coexist.

The fluorescent treponemal antibody absorption test should be performed if the medical history or physical signs are at least moderately suggestive of neurosyphilis. In other patients, the clinical usefulness is limited because of the low prevalence of this disease among patients with dementia (less than 0.5%).[34] In a series of 402 patients, no new cases of neurosyphilis were found;[71] thus, it is rare as a cause of dementia in the elderly population. Nevertheless, because of the recent increase of HIV infection, even among elderly patients, this prevalence may change. Overall, laboratory tests should be selected on the basis of the clinical manifestations and findings. Commonly suggested tests and various testing strategies are listed in Table 6.

Neuroimaging.—Neuroimaging is performed to exclude treatable or reversible causes of dementia, such as tumors or other types of mass lesions, ischemic disease, and NPH. Computed tomography (CT) without use of a contrast agent is sufficient for detection of most of the reversible dementias caused by large structural lesions. Patients with AD show a high degree of atrophy in the medial and temporal lobes and ventricular enlargement. CT findings, however, cannot confirm or exclude the presence of AD and do not distinguish between AD and normal aging.[73] Similarly, a clear-cut diagnosis of NPH can be difficult because only a minority of patients with imaging evidence of NPH have the classic triad of symptoms, and radiologic findings overlap considerably with the far more common AD.[74]

Magnetic resonance imaging (MRI) is more sensitive than CT for evaluating atrophy, vascular lesions, and lesions adjacent to bone, but the clinical utility of these findings in the evaluation of most cases of dementia is unclear. Of note, no brain MRI or CT findings are pathognomonic of vascular dementia.[11] Clinical correlation is essential because white matter abnormalities (hyperintensities) on MRI are found in 30% of subjects with AD and occur in 10% to 90% of all nondemented healthy elderly subjects.[75] White matter hyperintensities may result from alterations in myelin and fluid content rather than ischemic changes[76] or may reflect causes other than infarction (for example, multiple sclerosis or encephalitis).[77] Studies that have attempted to relate these changes to cognitive impairment are equivocal.[76,77] (Recent data suggest that focal white matter lesions without clinical evidence of stroke do not contribute to cognitive impairment and should not preclude a diagnosis of probable AD.[78]) MRI evidence of reduced volume in the hippocampus and the temporal horn of the lateral ventricles, however, may be useful as antemortem markers of AD in

Table 6.—Recommendations for Laboratory Evaluation of Dementia*

The American Academy of Neurology[21] (1995)

Routine: CBC, ESR, electrolytes, BUN, creatinine, liver function tests, serum vitamin B_{12}, syphilis serology, urinalysis, HIV testing

National Institute on Aging Task Force[72] (1980)

Routine: CBC, ESR, syphilis serology, serum vitamin B_{12} and folate, SMA-12, serum phosphate, thyroid screen, urinalysis, chest roentgenography, ECG

Larson et al[73] (1986)

Routine strategy 1: CBC, chemistry panel (glucose, calcium, creatinine, sodium, potassium, chloride, bicarbonate), thyrotropin

Routine strategy 2: Same as strategy 1 plus syphilis serology, ESR, serum folate

In selected patients: Serum folate and vitamin B_{12} (if CBC abnormal), TSH,† syphilis serology

Siu[34] (1991)

Routine: Initial chemistry panels, CBC, and thyroid function tests have a reasonable yield in identifying clinically significant problems that complicate dementia

Chest roentgenography, ECG, and urinalysis: Selective ordering for exclusion of coexisting nondementing medical problems (frequently indicated because of high prevalence of cardiopulmonary and urologic disorders)

ESR: If evidence of decline in health status

Serum vitamin B_{12}: If evidence of anemia, macrocytosis, or abnormal findings on examination (impaired vibration or position sense, abnormal gait, clouded consciousness) suggest deficiency

Serum folate: Probably indicated only in patients with dementia who also have anemia

Syphilis serology: Only if the history or signs suggest a moderate pretest probability of neurosyphilis; even if serum nonreactive, additional tests are necessary if suspicion for neurosyphilis is high

*BUN = blood urea nitrogen; CBC = complete blood cell count; ECG = electrocardiography; ESR = erythrocyte sedimentation rate; HIV = human immunodeficiency virus; SMA-12 = 12-factor automated chemical analysis; TSH = thyroid-stimulating hormone (thyrotropin).

†Updated by the authors.

patients with mild impairment.[79,80] Although MRI has superior resolution and allows multiple imaging planes, access can be limited, the cost can be high, and its value over CT in the assessment of dementia is unclear.[81]

Positron emission tomography and single-photon emission computed tomography demonstrate decreased glucose metabolism and blood flow in the temporoparietal region in early-stage AD (when memory loss is present without other cognitive deficits). These imaging techniques, however, are expensive, not widely available, and not yet standardized. The clinical usefulness of these studies in the routine assessment of dementia has not been established.

Inasmuch as dementia can be a relentlessly progressive fatal disorder, many clinicians (and most neurologists) believe that neuroimaging of the brain should be performed at least once in the evaluation of a dementing illness,[21,64] but some differences of opinion exist. For most patients with dementia, imaging findings do not alter treatment. Additionally, treatment of potentially reversible conditions such as chronic subdural hematoma, NPH, and brain tumors does not always (or even frequently) result in improved cognitive status,[73] and the associated operative morbidity in this age-group can be substantial. Whether preventive treatment of ischemic vascular disease alters the outcome in cases detected by imaging is uncertain. Abnormal imaging findings in the average case of dementia only slightly increase the odds of intracranial disease, and a normal result only slightly reduces an already small chance of such disease.[34] Because of the minimal probability of a potentially treatable intracranial lesion in the average subject (3.5% of patients[74]), Siu[34] and Larson and coworkers[70] have determined that routine imaging studies have a low yield and may be omitted. If the clinical manifestations and findings suggest at least a moderate probability of an intracranial lesion, CT without use of a contrast agent should be performed.

In contrast, practice guidelines for the evaluation of dementia endorsed by the American Academy of Neurology recommend that, although potentially reversible intracerebral conditions are relatively rare, imaging studies should be performed because these lesions are easily detected and often treatable.[21] In addition, brain tumors or other structural lesions that result in dementia are often not

Table 7.—Recommendations for Imaging in the Evaluation of Dementia*

The American Academy of Neurology[21] (1995) and the National Institute on Aging Task Force[72] (1980) A neuroimaging procedure should be obtained once in the evaluation of all cases of dementia (CT versus MRI not specified)
Larson et al[70] (1986) CT need not be routinely scheduled for all patients with dementia CT probably of most value in patients with recent onset of dementia (<1 yr) or acute deterioration and those with unexplained or atypical neurologic findings May be done for patient or family reassurance
Siu[34] (1991) Routine imaging studies for all patients is unwarranted Scanning is most useful when pretest probability of intracranial disease is at least moderate† In patients with low probability of disease, omitting imaging is reasonable—particularly if findings will not alter patient management

*CT = computed tomography; MRI = magnetic resonance imaging.

†Dementia present ≤1 mo, head trauma in the week before mental status changes, mental status changes of rapid onset or present less than 48 h, history of stroke, history of malignant tumor, history of urinary incontinence, focal signs, papilledema, visual field deficits, apraxia or ataxia of gait, history of seizures, or recent onset of severe headaches.

in sites that produce early focal lesions or focal findings on neurologic examination. Therefore, the presence or absence of focal findings on neurologic examination is only minimally useful in identifying patients with a high probability of a potentially treatable lesion on CT[82] and is unreliable as the basis for a decision to perform an imaging study.[64] We recognize, however, that imaging is not routine for some clinicians and in some countries and that the costs related to imaging, assessment, and treatment of all patients with dementia, and the associated false-positive diagnoses, are substantial. Some strategies for determining when to obtain imaging studies in the initial evaluation of dementia are outlined in Table 7.

Cerebrospinal fluid analysis.—Analysis of the cerebrospinal fluid is indicated in the following situations: dementing illnesses of acute or subacute onset (especially in patients with fever or nuchal rigidity), atypical or rapidly progressive initial manifestations, dementia in persons younger than age 55 years, suspected syphilis, and suspected infection or malignant lesion of the central nervous system.[21] Cerebrospinal fluid analysis should also be considered in patients with evidence of hydrocephalus, immunosuppression, demyelinating disease, or vasculitis (for example, in the presence of connective tissue disease). An imaging study of the brain should be performed before collection of cerebrospinal fluid, to determine the safety of the procedure.

Electroencephalography.—Electroencephalography (EEG) has limited utility in the initial evaluation of dementia. The EEG findings frequently are normal or nonspecific, but generalized background slowing may be detected. The slowing of alpha wave frequency and reduction in the range of peak power frequency evident in AD are later, relatively nonspecific findings.[33] Use of EEG should be limited to cases of dementia in which a high clinical suspicion exists for an atypical disorder such as Creutzfeldt-Jakob disease; in such a setting, characteristic EEG findings can be helpful. In patients with delirium, complex partial seizures, or certain encephalitides, EEG may also be useful.[2]

Specialty consultations.—Consultation with neurologists can clarify cognitive and examination issues through a more formalized, intensive assessment. Neurology specialty evaluations should be considered in patients who have cognitive impairment of recent onset (less than 12 months), atypical manifestations (for example, strokes, seizures, or focal neurologic findings), memory loss or dementia suspected clinically but cognitive testing that shows normal findings, superimposed depression, or an unclear diagnosis. Psychiatric assessment may be considered in selected patients with evidence of depression, behavioral disturbances, or other mental illness.

Prognosis

The DSM-IV categorizes progressive dementia into mild, moderate, and severe stages; however, the clinical pictures of the dementing illnesses are characterized by considerable variability. As a result of the heterogeneity present in AD, vascular dementia, and other dementias, the rate of progression varies from patient to patient, even among those with the same diagnosis. Individual patients may not experience linear patterns of deterioration but may decline more rapidly in certain functions than in others. Of note, MMSE scores are not linearly related to the rate of progression of dementia,[84] especially in the later stages, and are unreliable in the prediction of the course of the disease. Nevertheless, certain factors, in general, predict institutionalization (Table 8), and the clinician should provide family members with information on expected disease progression, symptoms, and survival.

Both extrapyramidal symptoms (EPS) and delusions can be present early in the course of AD. The presence of EPS is associated with greater severity of AD and suggests a more rapid course of disease over time.[85] Patients with delusions have a more rapid decline in cognitive function than do those without delusions,[84] but survival is similar in both groups. Some data[85] suggest a significant relationship between the presence of delusions and impaired functional status in AD, which ultimately will affect the level of independence of the patient. The presence of more aggressive behavior, disturbances of sleep (especially nocturnal awakening), and lower initial scores on verbal cognitive tests (language impairment) portend faster cognitive decline. Behaviors that predict a more rapid functional decline include paranoia, delusions, hallucinations, wandering, and purposeless or inappropriate activities, as do the presence of EPS and lower scores on nonverbal cognitive tests.[84]

Impaired hygiene and incontinence are usually late manifestations, and their presence suggests a more advanced stage of dementia.[22] Indeed, a recent study suggested that functional losses in dementia may occur in stages that seemingly reverse normal early human development.[86] Accordingly, deterioration in ADLs is followed by sequential loss of speech, ambulation, and continence and then sitting, smiling, posture, and feeding. Severe language disability (aphasia), followed by deterioration in functional capacity, proved to be the best predictors of accelerated AD and decreased survival in one study.[87]

The rate of disease progression before diagnosis tends to predict the subsequent rate of progression of dementia,[22] even when controlled for initial scores on cognitive testing. Patients with a shorter duration of disease at time of initial assessment have a faster rate of progression over time. Conversely, in subjects with a slower onset of disease, dementia may remain unrecognized until enough time elapses for deficits to become apparent. Reevaluation is recommended for abrupt changes in behavior, deterioration in cognitive status, or loss of function. These episodes of decline should not be dismissed as a function of progressive dementia because they may be the principal indication of an underlying medical illness. Infection, stroke, myocardial infarction, heart failure, and drug toxicity superimposed on a dementia may result in delirium, agitation, incontinence, or loss of independence in ADLs. A prompt, thorough evaluation is essential. The decision to place a demented adult in long-term care is dependent on several factors (Table 8). One-year institutionalization rates in patients with AD range from 12% to 39%.[88,89] The results of one community-based prospective study[90] revealed that half of the patients with dementia were institutionalized within 2.5 years after diagnosis; the median time from estimated onset of disease to nursing home placement was 5.6 years.

Table 8.—Factors That Predict Institutionalization in Patients With Dementia*

Patients with cognitive or behavioral problems (especially aggressive behavior, delusions, incontinence)
Unmarried patients
Son or daughter as caregiver (especially if employed)
Greater number of family and friends involved as caregivers†
High caregiver stress or burden
Poor caregiver health
Increased use of health care and home help services
Increased functional impairments (by ADL scales)
Lower cognitive status at baseline
Death of a spouse
Hospitalization
Prior institutionalization

*ADL = activities of daily living.

†The greater the number, the higher the risk of institutionalization.

A detailed analysis of survival in patients with dementia[91] found that studies have been based primarily on institutionalized patients, and few included dementia of recent onset or causes other than AD. Not surprisingly, studies that investigated mortality rates reported a shorter survival for patients with dementia than for the general population. One-year mortality in AD ranges from 9% to 37%, based on disease severity.[88] The observed/expected percentage ratio for one-year survival has been reported to be 101% in community-based patients, 79% among long-term-care residents, and 56% in mental hospital patients.[92] Five-year survival rates were 77%, 49%, and 27%, respectively. The mortality rate increases with advancing age. The mean survival was reported to be 7.7 years for demented adults 65 to 80 years of age and 3.8 years for those older than 80 years in several studies. This trend was strikingly apparent in Shanghai, where 23.7% of all deaths in those 75 years old or older could be attributed to dementia, higher than emphysema (9.3%), heart disease (5.8%), and hypertension (5.1%) combined.[93] In contrast, dementia accounted for just 4.7% of all deaths in those 65 to 74 years of age, because of the lower prevalence in this age-group.

Among patients with dementia, women have a longer survival than do men,[91,94] perhaps as a result of overall higher life expectancy. Nevertheless, dementia may be recognized earlier in women when losses in performance of home management skills are prominent (responsibilities less often borne by older men). Studies show a slightly higher survival rate for patients with AD than for those with vascular dementia, although these differences have been small and inconsistent. Patients with a younger age at onset of dementia deteriorate faster on cognitive scales, but the effect on mortality is unclear. Survival of patients with dementia in long-term-care facilities is shorter than that of patients institutionalized for nondementing conditions (53% *vs* 61% at two years), but the loss of functional capacity is the strongest influence on survival in those with dementia.[94]

Discussion

Dementia will become an increasingly important health problem as the population of older adults escalates. Thorough assessment of elderly subjects who have evidence of cognitive or functional decline or who complain of memory loss is needed for accurate identification of clinically significant impairment. Although no curative treatment exists for most dementias, an important goal is to identify reversible, partially reversible, and treatable factors that may cause or contribute to a dementing process. In addition, management of behavioral and medical issues can be improved once dementia has been diagnosed.

Correction of underlying depression, drug toxicity, hypothyroidism, and metabolic disorders may result in improvement for 11% to 69% of patients,[24,95] and earlier recognition and intervention will yield better results. Improvement in cognition has also been noted after treatment of concurrent nondementing medical illnesses;[70] some subjects experience continued improvement for at least a year.[96] For example, hearing amplification can reduce the isolation and depression resulting from presbycusis and lessen its effect on cognitive function.[97]

Controversy exists about the selection of tests and the extent of evaluation necessary for the diagnosis of dementia—perhaps attributable to differences in desired level of diagnostic certainty, disagreement over the clinical importance of certain findings, and the struggle to meet economic imperatives. Only continued research can supply the needed evidence for further refinement of the evaluation of dementia.

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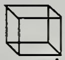
Appendix I—A Short Test of Mental Status

Area of cognition	**Potential points**	**Specific task**
Orientation	8	Name, address, current location (bldg), city, state, date (day), month, year
Attention, immediate recall	7	a. Digit span (present l/second; record longest correct span): 2-9-6-8-3, 5-7-1-9-4-6, 2-1-5-9-3-6-2
	4	b. Learn four unrelated words: "apple, Mr. Johnson, charity, tunnel" (number of trials needed to learn all four:_____)
Calculation	4	5 x 13, 65 – 7, 58 ÷ 2, 29 + 11
Abstraction	3	Similarities: orange/banana, dog/horse, table/bookcase
Construction	2	Draw clock face showing 11:20
	2	Copy: 
Information	4	Current president, first president, define an island, number of weeks in a year
Recall	4	Recall four words: "apple, Mr. Johnson, charity, tunnel"
Total	38	Subtract 1, 2, or 3 if more than one trial was required to learn the four words
Final score _______		

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DRUG INFORMATION UPDATE: HARTFORD HOSPITAL

Metformin: An Alternative Treatment for Noninsulin-dependent Diabetes Mellitus

CATHERINE M. HITT, PHARM.D.

METFORMIN (Glucophage®) was approved for use in the treatment of noninsulin-dependent diabetes mellitus (NIDDM) in the United States in December 1994. Metformin, N, N dimethylbiguanide, belongs to a class of drugs called biguanides that were originally discovered in the mid-1950s. A plant containing guanadine, a closely related substance, was used for the treatment of diabetes mellitus in medieval Europe.[1] Metformin appears to exert its hypoglycemic effects without altering insulin production, therefore, it is more correctly termed an antihyperglycemic. Phenformin is also a biguanide that was used in the treatment of NIDDM; however, this drug was removed from world markets in the mid and late 1970s because of high incidences of fatal lactic acidosis.[2] Metformin has been used widely in Europe and Canada for approximately 35 years, with good clinical results and a much lower incidence of lactic acidosis than phenformin. The following is a review of the pharmacology, pharmacokinetics, and clinical experience with metformin and its role in the management of noninsulin-dependent diabetes mellitus.

Pharmacology

Metformin produces a reduction in both fasting and postprandial glucose levels in obese, noninsulin-dependent diabetic patients without causing a signifiicant change in insulin secretion. However, insulin must be present for metformin activity.[3-6] Metformin does not produce excessive hypoglycemia in diabetic patients or reduce blood glucose in nondiabetic individuals. It is thought that metformin exerts its antihyperglycemic effects through a combination of mechanisms including increasing cellular glucose uptake, reducing hepatic gluconeogenesis, and reducing gastrointestinal glucose absorption. The suggested mechanism for increased cellular uptake of glucose is a possible increase in the number of insulin receptors. In 1981, Holle and colleagues,[66] reported a 35% increase in erythrocyte insulin receptor sites per cell following two doses of metformin, 850 mg, in four nondiabetic subjects. Prager and Schernthaner[7] refuted this argument in 1983 when they reported no effect on monocyte insulin receptors in obese NIDDM patients following two weeks of metformin 850 mg twice daily. Improvements in intracellular insulin processing, due to potentiation of postreceptor enzymes that enhance glucose uptake and utilization in skeletal muscle and other tissues, are thought to play a significant role in metformin activity.[3,5,7,8] Metformin causes a reduction in basal hepatic gluconeogenesis by increasing hepatic sensitivity to insulin.[4,9] It has also been proposed that metformin inhibits glucose absorption from the gastrointestinal tract by inhibiting glucose-sodium transport across the intestinal brush border.[10]

In addition to the antihyperglycemic effects of metformin, other beneficial effects include a favorable effect on plasma lipid profiles, blood pressure, and weight loss in obese, noninsulin-dependent diabetics. Multiple trials have found that metformin therapy can produce a decrease in both low density lipoprotein and very low density lipoprotein cholesterol, triglycerides, and cause a slight increase in high density lipoprotein cholesterol.[4,11-14]

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This effect may be important to patients with NIDDM since a common comorbid condition is atherosclerosis of large vessels with associated increased cardiovascular risks.

Metformin has also demonstrated beneficial effects on blood pressure. A study in nine nondiabetic men reported a 22% to 30% reduction from baseline blood pressure readings following six weeks of metformin (850 mg twice daily) therapy.[11] In trials with diabetic patients, however, less dramatic effects on blood pressure have been reported, ranging from a 6% increase to a 2% decline in systolic pressures.[15] Additionally, a trial in 15 nondiabetic men with peripheral vascular disease demonstrated an improvement in peripheral blood flow following 850 mg of metformin three times daily for six months.[16] A final added benefit of metformin is its ability to produce a 1% to 5% weight loss in obese noninsulin-dependent diabetic patients, although this effect has not been reported in all clinical trials. The weight-reducing effect has not been observed in healthy individuals or nonobese diabetics.[4,17-19]

Pharmacokinetics

Metformin is rapidly absorbed following oral administration with a reported bioavailability of approximately 50% to 60%.[10,20] Following administration of single 850 mg and 500 mg doses, peak plasma concentrations of 1.5 to 2 mcg/mL and 0.7 mcg/mL, respectively, are reached in approximately two to three hours.[20,21] Metformin is not significantly bound to plasma proteins and has a volume of distribution of approximately 650 L.[21,22] It is not significantly metabolized by the hepatic route and has no active metabolites. The primary route of excretion is active renal tubular secretion with a high correlation between metformin clearance and creatinine clearance.[22] In patients with normal renal function, metformin has an elimination half-life of approximately 1.5 to 3 hours, which increases to 4 to 6 hours in patients with renal dysfunction.[20-22]

Clinical Trials

There are a multitude of clinical trials demonstrating efficacy of metformin for treating NIDDM in both obese and nonobese patients. DeFronzo and coworkers noted substantial decreases in fasting blood glucose (23%), HbA_{1c} (21%), total cholesterol (18%), and triglycerides (45%) in eight obese and six lean NIDDM patients following three months of therapy with metformin 2.5 g daily.[4] Hermann and colleagues reported similar results in 124 NIDDM patients receiving metformin alone and in varying combinations with glyburide.[15] Fasting glucose, HbA_{1c}, total cholesterol, LDL cholesterol, triglycerides, and HDL cholesterol decreased by 24%, 16%, 1%, 8%, 3%, and 5%, respectively in patients receiving metformin (1 to 3 g daily) alone. More dramatic changes were observed with metformin (3 g daily) in combination with glyburide (3.5 mg to 14 mg daily); fasting glucose and HbA_{1c} decreased by 41% and 26%, respectively, while HDL cholesterol increased by 5%.

Metformin has also shown benefit in the treatment of type II diabetics after failure of sulfonylurea monotherapy and the initiation of insulin therapy. Giuliano and associates, reported a significant improvement in glucose control in 27 type II, obese diabetics receiving insulin therapy following failure of sulfonylureas.[23] These patients experienced reductions in fasting glucose, HbA_{1c}, total cholesterol, and triglycerides by 34%, 16%, 4%, and 11%, respectively, while HDL cholesterol increased by 13%, following six months of combined insulin and metformin (850 mg twice daily) therapy. The addition of merformin to the regimen allowed one-half of the patients to reduce their total daily insulin dose by approximately 25%.

Various trials have demonstrated that metformin is equally efficacious to the sulfonylureas, including chlorpropamide, tolbutamide, and glyburide, when used as monotherapy in noninsulin-dependent diabetics uncontrolled by diet and exercise alone.[15-17,24] In a recently published trial, the United Kingdom Prospective Diabetes Study Group reported that 2,520 NIDDM patients were treated with either diet alone or in combination with insulin, a sulfonylurea (chlorpropamide, glyburide), or metformin (only if obese), following the failure of three months of dietary therapy. Those patients receiving any drug therapy in addition to diet over the three-year study period, all showed similar glucose lowering efficacy. The metformin-treated group did not show any weight gain, while the sulfonylurea- and insulin-treated patients demonstrated a 2 to 5 kg weight gain. Fasting plasma insulin levels were also decreased for patients receiving metformin, while they remained constant for the sulfonylurea-treatment groups.[24] The use of metformin in combination with sulfonylureas has also been established as an effective mode of therapy. From a pharmacodynamic perspective, this approach seems rational as these drugs have different mechanisms of action, the sulfonylureas increasing endogenous insulin output and metformin potentiating insulin activity at the level of the target cells. Thus, the therapeutic effects of both drugs may be maximized at lower doses, reducing the potential for adverse effects.[25]

Adverse Effects

The primary side effects of metformin include gastrointestinal discomfort (diarrhea, nausea, vomiting, abdominal bloating, flatulence), asymptomatic reduction of vitamin B_{12} levels, a transient metallic taste with initiation of therapy, and lactic acidosis. Of the gastrointestinal complaints, diarrhea is the most common, occurring in up to 20% to 30% of patients, and appears to be dose-related.[17,26] This effect can be limited by gradual dose titration with the initiation of therapy and administration of metformin with meals. Reduction of vitamin B_{12} levels is thought to result from decreased absorption induced by metformin, long-term therapy (> 5 years), and generally does not produce clinically significant manifestations.[27] Metformin has a substantially lower risk of producing lactic acidosis than phenformin (.03 to .05 *vs* .64 cases/1,000 patient years).[28,29] Most cases of metformin induced lactic acidosis are usually associated with metformin administration in patients with predisposing factors that alter lactate metabolism or reduce elimination of metformin. These factors include advanced age (> 70 years), renal impairment (serum creatinine 21.5 mg/dL), liver dysfunction, cardiac failure, severe infectious processes, or any condition that can produce anoxia.[30] For patients receiving metformin therapy, it is recommended that renal function and lactate levels be routinely monitored to prevent the occurrence of severe lactic acidosis.

Place in Therapy

Metformin has a role as an alternative drug therapy, following the failure of diet, for the management of NIDDM. It is especially useful in obese patients because it does not produce the weight gain commonly seen with sulfonylureas. In addition, it improves glucose control in patients who fail to respond adequately to sulfonylurea monotherapy. Thus, it may be added to the regimen of patients who no longer respond adequately to a sulfonylurea, and may delay the need for insulin addition to the regimen.

Drug Interactions

Metformin has the potential for several clinically relevant drug interactions. Somogyi and coworkers determined that cimetidine increases the metformin area under the plasma concentration curve (AUC) by 50% by competitive inhibition of renal tubular secretion. It is recommended that the dose of metformin be decreased in patients receiving cimetidine.[31]

It is well established that iodinated contrast media can induce acute renal failure, especially in patients at risk, such as diabetics.[32] It is recommended that metformin therapy be stopped for at least 48 hours before and 48 hours following any radiological study requiring the use of such contrast media to limit potential toxicity should renal failure occur following the procedure.[29]

Dosage and Cost of Therapy

The usual starting dose is 500 mg to 850 mg twice daily with meals, which may be increased to a maximum dose of 2.5 g daily. The minimum effective dose is usually greater than 1,500 mg daily; however, initiating therapy with a lower dose may minimize gastrointestinal side effects.

The average wholesale price (AWP) of metformin (Glucophage® 850 mg b.i.d.) per month is $45.36, which is comparable to glyburide (Micronase® 5 mg b.i.d.) $31.95, and glipizide (Glucotrol® 10 mg b.i.d.) $37.09, and signifiicantly more expensive than older generic agents chlorpropamide (250 mg daily), and tolbutamide (500 mg b.i.d.), $3.94 and $3.60, respectively.[33]

Conclusion

Metformin has been used in Europe for a number of years as a safe alternative therapy for treatment of obese, noninsulin-dependent diabetic patients following failure of dietary management. The recent approval of metformin for use in the United States offers an alternative to sulfonylurea therapy in obese patients with the added benefits of lipid reduction and no weight gain.

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"Dogpatch," and Such Other Places

Part I of II

WILLIAM FLEESON, M.D.
1915-1995

IN the spring of 1945, without knowing what I was getting into, I became involved in the Manhattan Engineering District, the atomic bomb project. Three years earlier, a year after graduation from medical school in 1942, I had reported for duty in the Army Medical Corps. When a classification sergeant learned that I had an interest in psychiatry he stamped my personnel file "3130, Military Neuropsychiatrist." With no more formality than that my assignments for the next two years were to psychiatric services in Army Hospitals in Texas and Arkansas, not unlike Gregory Peck in the movie *Captain Newman, M.D.*

In March 1945 Eisenhower's forces had crossed the Rhine, the Battle of the Bulge had been won. MacArthur and Nimitz were leap-frogging from Pacific island to Pacific island, closing in for the invasion of Japan.

The telephone rang in my office at the station hospital of Camp Joseph T. Robinson, near Little Rock, Arkansas. The caller was a former medical school professor of psychiatry asking me to join his staff at a "secret War Department project" in eastern Tennessee.

"But Dr. Clarke, I am attached to the 8th Service Command," I answered. "They won't release me."

"With the shortage of civilian psychiatrists," Dr. Clark explained, "we have sometimes been able to arrange transfers. Let me see what can be done. Don't say anything to anyone about my call."

In those days army officers were not consulted nor given choices about their assignments. Yet within six weeks, orders marked CONFIDENTIAL directed me to proceed "without delay to the 9812th Technical Services Unit, Corps of Engineers, Manhattan Engineering District, Oak Ridge, Tennessee." There was no inkling that the Manhattan Project was making an atomic bomb or that Top Secret clearance would come my way. My 30th birthday would be in May, a few weeks away.

Though it has been more than 50 years since I was ordered to the Manhattan bomb project, the memories of my year at Oak Ridge and such other places where my orders took me remain vivid. Related incidents seemed eventful and certainly made an impression. Conversations recorded in this story are reconstructed from memory. The chronology of my travels is documented by copies of travel orders in my files. People mentioned were real but some names have been changed.

As soon as my orders arrived, my wife and our 18-months-old son went to Kansas to stay with my parents until housing could be arranged in Tennessee. The railroad ticket that came with my orders took me from Little

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WILLIAM FLEESON, M.D., Yale School of Medicine, Class of 1942, was professor of psychiatry at the University of Connecticut School of Medicine from 1963 through 1995, and was associate dean for student affairs during his first decade at the school. He was one of the first of two faculty members called to the School of Medicine after the appointment in May 1963 of Lyman Maynard Stowe, the founding dean. Dr. Stowe asked Dr. Fleeson, assistant dean at the University of Minnesota, and Dr. John Patterson, dean at the University of British Columbia and previously vice chancellor and dean at Vanderbilt, to join him in planning the new institution in Farmington. Dr. Fleeson was a member of the Connecticut State Medical Society from 1963 until his retirement in 1982. He continued teaching and seeing patients at the Newington Veterans Administration Medical Center after his retirement until a few days before he sustained a stroke and died on 13 November 1995.

Dr. Fleeson presented this very personal account of his experience with the Manhattan Project in 1945-46 to Mr. Whitney Jacobs shortly before his death. Mr. Jacobs, formerly of the *Hartford Times,* had been for many years Director of Public Information at the University of Connecticut Health Center in Farmington.

Rock, Arkansas, to Knoxville, Tennessee. I could not find Oak Ridge on any map, so how to get there or where it was was unclear when the train pulled into Knoxville on 2 May 1945. Spring rain pounded on the roof of the train shed and poured in sheets from the eaves. Out of the early morning dark came a voice: "Captain Fleeson?" from a sergeant wearing side arms and the arm band of Military Police. He showed me to an unmarked staff car. There were two or three other passengers, one a woman, all in civilian dress. It was curious to me that they did not introduce themselves, nor was there any conversation as the driver took us over a winding, wet road for about an hour. The car stopped at a gate with a guard house set in a high-wire fence that ran out of sight to the left and right. We were told to wait inside. The other passengers disappeared.

After what seemed a hours I decided to take the bus parked inside the fence and find the hospital myself. An armed guard stopped me before I had taken six steps. Firmly he inquired where I was going.

"Look, I'm Captain Fleeson and here are my orders to report to the hospital. I'm expected there."

"If the Captain will step back inside the guard house, transportation will be provided," and after a perceptible pause, "Sir."

Pulling rank was not going to work. A staff car finally arrived and again there was no conversation though the driver knew my name. We passed a huge trailer camp, a shopping center with a bank, beauty parlors, grocery stores. There were houses, not barracks, on residential streets winding up a low ridge to the right of the main road. There were many women and small children on the street, few people wore uniforms. Our destination was not the hospital but another gate in a high fence surrounding a three-story frame building, and more armed guards. My orders were scrutinized and I was directed inside.

After another wait I was called into the office of a lieutenant colonel. He asked me to sit down and then proceeded to tell me that this was a secret project, essential to winning the war, and that I would be told what I needed to know to do the job assigned to me and nothing more. He made it clear that I was not to ask questions about the nature of the project and that my letters to family and friends were to be discreet about the location of Oak Ridge and the work that went on. I inferred that my mail would be censored—in and out. The colonel was deadly serious.

When I was dismissed another car took me to the hospital. On my way through another part of the town there were many questions in my mind about the place. Though it was not on the map, it was big and bustling.

At the hospital my greeting was warm and friendly from Eric Clarke who had gotten me into this, and from the CO, Lieutenant Colonel Rea, whom I had known during my days as an intern. In response to my apologies about arriving so late in the day because of a delay at the gate, both Clarke and Rea laughed. They assured me that delay at the gate and briefing at headquarters was standard treatment for new arrivals to "Dogpatch"—the unofficial code name for Oak Ridge—and, no, the town was not on the map but had been carved out of farm land. They said that there was much more to the project than could be seen from the town and that my special Manhattan District ID card would now pass me through the gate without delay.

Dr. Clarke invited me to stay with him and his daughter in his three-bedroom "D" house up the hill above the main shopping center. My wife and son were also invited, and they arrived before the end of May.

Before my family arrived, the executive officer of the hospital, another Minnesotan whom I had known as an intern, took me on a day trip to a Rest and Rehabilitation Center in Asheville, North Carolina. He was recruiting medical officers who had returned from overseas duty. During the long ride through the Smoky Mountain National Park he told me that 12 civilian physicians, most of them from Minnesota, had arrived in the summer of 1943. They were later given commissions in the Medical Corps. Two civilian psychiatrists were recruited in 1944, Eric Clarke and Carl Whitaker. The hospital admitted the first patient in November 1943, and had grown from 50 beds to a fully accredited hospital of over 300 beds, 50 medical officers, 150 civilian nurses, and 400 nonprofessional employees in one and a half years. By May 1945, there were more than 300 clinic visits, three deliveries, and 25 to 30 hospital admissions each day. And the community was approaching a population of 100,000. There was plenty of work to do.

Shortly after my wife Beatrice arrived, the Clarkes gave a party for us. Bea had been warned that no one talked about their jobs in Dogpatch and that asking questions about the project was pointedly discouraged. She had asked me what all of those people were doing in Oak Ridge and what was going on. Quite truthfully I pleaded ignorance and told her that I had wondered about it from my first day. She decided to find out for herself at the party.

From across the living room I saw that Bea was surrounded by three or four people. The talk seemed animated. Bea turned to set down her glass on a low table nearby. When she turned back to resume the conversation, she found herself standing all alone, "in Coventry." She told me afterwards that she had said that she saw train loads after train loads coming in but that she never saw anything going out. What, she asked, was going on, what was being made? From that moment she never asked again.

Late in May, less than a month after my arrival in Oak Ridge, Colonel Stafford Warren, chief medical officer of the Manhattan Project, called to say that he wanted to see me and would come to my office in the hospital.

With his characteristic lumbering gait the big man walked in. He was an impressive figure, about 46 years old, six feet, four inches tall with iron gray hair, an aquiline nose, and a closely-clipped brush mustache. He was immediately likeable. He was wearing high-laced boots, dark green shirt and pants, the caduceus of the Medical Corps on the left collar point, and the silver eagle of his rank on the right.

Without preamble he opened the conversation with, "Bill, I have an assignment for you. There is a problem at 'Y,' another District site in the Southwest—very hush, hush."

He went on to tell me that morale of supply and support personnel and all army enlisted men was bad at 'Y.'

"Too many neuropsychiatric casualties," he explained. "Your chief thinks that part of the problem is that the recruiters from personnel are not screening out the neurotics before assigning them there. The army brass decided to assign a psychiatrist to help the personnel branch." He added that the job was a bit tricky "because you can only advise and suggest. They don't like the idea of anyone telling them how to do their work."

"So, I will have to get on their side," I said.

"Something like that," he answered. "You've been given a big job. Your orders are being cut now. You leave tomorrow and will be briefed on the train.... Good luck."

After he left I thought to myself, "What have I gotten myself into by agreeing to go to Oak Ridge and what in hell will I do with this assignment?"

That evening my wife was not enchanted with the news that I would be leaving in the morning, destination and return date unknown. I was as much in the dark as she was.

A major from the personnel branch and a sergeant picked me up for the car trip to the train station in Knoxville.

After lunch in the dining car the major called me into an empty drawing room and shut the door. He pulled down the shade so that we could not be seen from the passageway.

"Captain, your assignment makes it necessary for you to know what the Manhattan Project is all about."

The major's words came out rapidly and it was not easy to follow him.

"We are developing a completely new energy source—atomic power.... The potential is enormous.... Electrical power costs will become negligible.... Some day home refrigerators will be powered by tiny cells no bigger than a pack of cigarettes.... Automobiles will never need to be refueled.... The power industry will be revolutionized.... Meanwhile, a bomb using atomic fission is being developed which will end the war.... Your assignment is to help us select men to produce this bomb as soon as possible.... The project has the highest priority and we can requisition any men or material, no matter how scarce.... You are to understand that what I am telling you is Top Secret and you are not to talk about it with anyone...."

The major was not being friendly. I guessed that he had given this speech many times before. He went on, implying without saying directly, that some of the people he had to deal with were not cooperative enough to suit army ways. And since I was in uniform I had better behave myself.

"The Manhattan Project has top priority.... We can call on any branch of service...," I thought:

So that's why Clarke wasn't a bit concerned about prying me out of the Eighth Service Command.

"Men assigned to the District can't be pulled out for any other duty. We have them for duration...."

Well, I guess that means there will be no overseas duty for me, and the surgeon general can't touch any of us—I'll bet he doesn't like that much at all.

"... We take security risks very seriously in this project. ... Our recruiters are well trained and know what they are doing...."

Major, you have my full attention. Warren told me that it would not be easy to get acceptance from you and your people.... Where was my opening? I'd better play a waiting game.... This man doesn't like dealing with independent people that he can't control.

After the briefing session, which was more of a lecture on what I should and should not do, I knew that I had gotten myself into something much bigger than I could ever have imagined, and that my training in medicine and psychiatry wasn't going to help much.

Military secrets were alien to me and I didn't need them. I went back to my seat in the Pullman car and sat staring out the window for a long time aware that I knew a great deal more about the Manhattan Project than I wanted to know. This was science fiction brought into the 20th century. The major did not tell me where we were going nor did he give me any clue as to what was expected of me when we got there.

We changed trains the next morning and embarked for St. Louis where we met two non-coms from "Y." The major handed me a sheaf of orders and transportation requests. Before he left on other business he took me aside to add some verbal instructions.

The orders read: "To: William H. Fleeson (0-439054), Captain, Medical Corps.... You are directed to proceed from your proper station, Oak Ridge, Tennessee, to Fort

Leonard Wood, Missouri, and Camp Crowder, Missouri, and *such other places within the continental limits of the United States as may be necessary,* on an emergency war mission in connection with a military construction project in accordance with Par 3(b)(2) Army Regulations 55-120 … as amended … and on completion thereof return to your proper station.…"

Instead of the usual "For the District Engineer," with the typed name of an assistant, these papers read "By order of the Secretary of War" with a facsimile signature: "Henry L. Stimson."

On the train and in the major's absence, the sergeants told me they were given a quota to fill before they left "Y" and they were responsible for filling that quota with the required number of soldiers. The men were to be trained on the job when they arrived in the Southwest.

"Sergeant, what kind of men are you looking for?"

"Any kind, Captain, so long as they can do a job."

"Can you tell me anything about the jobs they will have to do?"

"Oh, all kinds. Cooks, bottle washers, MPs, machine operators, carpenters, machinists—whatever."

"Wouldn't it be a good idea to look for men with some experience or skills in the jobs to which they will be assigned?"

"Captain, right now I need cooks and mess sergeants. There is a school for cooks at Ft. Leonard Wood and that's where we're going."

We arrived at our destination late that afternoon and went to headquarters. We all went in to see the commanding officer of the cooks' school, a full colonel. I explained that we had orders to interview some of the men being trained to be mess sergeants and could we please have space to interview and, if possible, use of a jeep as we would be on the post for several days.

The colonel was very brusque: "Sorry, Captain, we're very busy here. Come back next week."

"Sir, here is a copy of my orders. I was told that if there was any question about them that Colonel Peterson in the Chief of Engineers Office in Washington should be called. I'm sure that he can clear up any difficulty.… May we have transportation now to the BOQ (officers quarters), and quarters for my men?"

The next morning at 7 o'clock there was a knock on my door.

"Sir, the colonel's compliments. His car is outside, and I will drive you to the school area whenever you and your men are ready. The car will be at your disposal as long as you are here, but the colonel regrets that the commanding general has called a meeting at 10 this morning and he will need the car for a couple of hours then." Our reluctant colonel had felt the power of the Manhattan Project.

After a week at Ft. Wood I had gotten to know a little more about the sergeants with whom I was working. They were a curious trio. Norm, from Oak Ridge, was the quiet one who did as he was told, offered little conversation, and always called me "Captain, Sir." I never had any idea about what he was thinking. Mac, wearing the stripes of a master sergeant, was a feisty little Scotch-Irishman with red hair and blue eyes to match. He seemed to know everything about anything and, while respectful, was not impressed by the army distinction between officers and non-coms. Joel was a shapeless Levantine from New York City. He loved the aura of secrecy surrounding the project, loved to talk, and was quite conscious of the distinctions between the ranks. Neither Brooks Brothers nor even Saville Row tailors could have made Joel look good in a uniform. They were a good team with Mac making the arrangements and organizing the task while Norm and Joel did the work of sorting through the big yellow cards on which the work experience of the draftees was coded as an MOS number—Military Occupational Specialty. Numbered holes were punched on all four edges of each soldier's card. A notch was cut at the appropriate hole corresponding to the MOS number. Long thin knitting needle-like rods were inserted through the edge of a batch of cards, and the cards with holes could then be lifted out of the deck leaving behind those with notches—the ones we wanted. The sergeants could sort through hundreds of cards in an hour.

We went from Ft. Wood to Camp Crowder to find electricians. The route had become familiar: the sergeants first sorted the cards. The men we wanted to see were then called in for interviews in groups of eight or 10. Mac, the senior sergeant, sat in with me.

One of us said, "We want men for an army project in the southwestern United States. You will be doing what you were trained to do before you were drafted into service.… You can turn down the assignment if you want to.…"

One young smart aleck piped up with, "Oh, I know what that's all about. They're making a secret weapon out there which may never work.… I know all about it.…" He carried on at some length showing off his information about things we felt he should not be talking about. Propaganda signs and army orientation sessions to which everyone was repeatedly exposed warned "The enemy may be listening.… Button your lips, Loose lips sink ships, etc."

Later in the day Mac and I decided that the brash young man knew too much and did not have the sense to keep quiet about what he thought he knew and was therefore a threat to district security. We went to the post Military Intelligence office, identified ourselves with our special Manhattan District ID cards, and told the young officer of our concern.

"Thank you, Captain. We will keep an eye on him." Mac and I thought that the soldier might find himself transferred sooner than he expected. There was, so we believed, a secure supply base in a backwater of the South Pacific, far from combat action, an ideal place for those who talk too much.

We requisitioned a car to take us from Camp Crowder to the Joplin, Missouri, airport. Our tickets were in order, but there were no empty seats on the plane to St. Louis. After some discussion with the ticket agent, we were cleared through the gate and onto the tarmac. On the short walk to the plane we saluted a brigadier general and his aides who had been evicted from their seats aboard the plane to make room for us. The general must have wondered about a medical corps captain, and three sergeants delaying him in his travels.

From St. Louis the sergeants went their separate ways. I returned to Dogpatch alone.

(to be continued in the next issue)

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AMA and USP Seek Physician Assistance in Preventing Medication Errors

THE UNITED STATES PHARMACOPEIA (USP)

While the goal of drug therapy is to achieve a therapeutic outcome that will improve a patient's quality of life, there are inherent risks associated with that therapy. Among those risks are medication errors that occur anywhere along the continuum as drugs are prescribed, dispensed, and administered. Errors are preventable when there is increased practitioner awareness of the types of errors and of the knowledge and performance deficits that contribute to them. At its June meeting, the American Medical Association's House of Delegates adopted the following resolution supporting the physician's role in the prevention of medication errors.

BE it resolved, that the American Medical Association House of Delegates reaffirm its current position regarding drug errors and encourage physicians and their collective groups to initiate local programs to quantify the extent of the drug error problem by, for example, establishing hospital or other local drug error reporting systems via quality assurance mechanisms, and by forwarding appropriate data to existing programs aimed at reducing the incidence of drug errors, including the Medication Errors Reporting Program of the United States Pharmacopeia, and the MedWatch program of the FDA.

Medical therapy results in unintended injuries that have been estimated to affect 1.3 million people each year in the United States.[1] As many as one out of every five doses of medication administered may be given either to the wrong patient, in the wrong dose, by the wrong route, at the wrong time, or even as the wrong drug. Additional studies suggest that in hospitals the prevalence of medication errors is one error per patient per day.[2]

The USP Medication Errors Reporting (MER) Program has received more than 2,000 confidential reports on actual and potential medication errors occurring from the point of prescribing through the administration of the medication. In addition to the anguish medication errors impose on patients and health-care providers, the consequences are extremely costly to the health-care system. A study by the Physicians Insurers Association of America found medication errors to be a frequent cause for malpractice litigation. In 90,000 malpractice claims over a seven-year period, medication errors were the second most prevalent and most expensive source of claims. The average indemnity payment for the 393 most recent medication error claims was $120,722 with a range of $5,000 to $2.2 million per claim.

The most common categories of errors reported to the MER program are similar product names (both brand and generic), misinterpretation of abbreviations, similar labeling and packaging, and miscalculations. USP has recently published a USP *Quality Review* with more than 220 reportedly similar product name pairs. Similarities involve trade names, generic names, foreign drug names, and over- the-counter product names. It is not surprising that errors occur when medication orders are incomplete; whenverbal and written communication is unclear; or when physicians, nurses, pharmacists, and patients are unfamiliar with drug names. It is easy to see the potential for serious, even fatal, outcomes when drugs are mistaken for each other. The likelihood of mix-ups increases if the drugs are available in the same strength or used in the same dosing interval.

The United States Pharmacopeia (USP) offers this information to provide practitioners a better picture of the nature and extent of medication errors and to offer specific suggestions as to how physicians, in their day-to-day practices, can help avoid errors.

According to the American Medical Association, prescribing errors, which can be subdivided into technical and clinical judgement errors, are caused primarily by physicians. Errors are often characterized by illegible handwriting, misspellings and the use of inappropriate abbreviations in written orders, and garbled or unclear oral orders. One specific area that consistently results in medication errors is the use of abbreviations in prescription writing, as shown in the following examples:

- "U" commonly used to indicate "unit," is misread as a zero resulting in a ten-fold overdose for critical drugs such as insulin and heparin.
- Not all computer systems use abbreviations consistently or exclusively. One example is "AZT," which has been programmed for both azathioprine and zidovudine.
- "PRN" (as needed) and "UD" (as directed) have been found to be consistently associated with errors in medication dispensing and/or administration because these vague dosing instructions provide no assistance for the nurse or pharmacist who may misread the drug name.

In 1994, the AMA Board of Trustees recommended the following:

- Written drug or prescription orders should be legible.
- Physicians with poor handwriting should print or type medication orders if direct order entry capabilities for computerized systems are unavailable.
- Medication orders should be clear and complete and should include patient name, drug name, route and site of administration, dosage form (if applicable), dose, strength, quantity, frequency of administration, desired therapeutic outcome, and prescriber's name.
- Physicians should review all drug orders for accuracy and legibility immediately after having prescribed them. Medication orders should be clear and unambiguous.
- Physicians should write out instructions rather than use nonstandard or ambiguous abbreviations (write "daily" rather than "qd," which could be misinterpreted as "qid").
- Avoid the use of decimals when possible (e.g., prescribe 500 mg instead of 0.5g).
- Use the metric system of measurement rather than the apothecary system.
- Prescribe by standard nomenclature, using United States Adopted Names, and avoid locally coined names.

General advice for preventing medication errors includes the following:

- Spell names aloud when telephoning prescriptions.
- Use type or block printing for prescriptions (prepared blanks and computer-generated prescriptions work well).
- Always specify drug strength.
- Patient and caregiver counseling is also an additional safeguard against errors. Patients and those who care for them must know, at a minimum, what the medication is for, how it should look, and its name.

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1. Leape LL, Bates DW, Cullen DJ, et al: Systems Analysis of Adverse Drug Events *JAMA* 1995; 274:35-43.
2. Allen EL, Barker KN: Fundamentals of Medication Error Research *Am J Hosp Pharm* 1990; 47:555-71.

To report an actual or potential medication error, contact USP's Medication Errors Reporting Program at 1-800-233-7767. Each report is shared with the Food and Drug Administration, the product manufacturer, and the Institute for Safe Medication Practices. All reports are confidential and practitioners may choose to remain anonymous.

Practitioners receive all follow-up information received by USP and reports are used to stimulate changes in USP drug product standards and drug information.

Commentary

Weight Loss Requires Discipline, Not Gimmicks

Even though Americans are more health conscious than ever, the prevalence of obesity is increasing. Over the past 10 years, the average weight of those in their 30s increased by four pounds and for those in their 40s, the increase was nine pounds.

Helping the public to lose weight has become a multibillion-dollar industry and some clever marketers are suckering people to spend their hard-earned money on weight-loss scams that substitute gimmicks for will power. The public is inundated with diet books, magical protein formulas, pills, Rube Goldberg exercise machines, and weight-loss clubs. Yet, more people are waddling around than ever before. This is because many weight-loss programs start with the big lie: You can eat whatever you want and lose weight.

In actuality, for the vast majority of human beings, the only way to lose weight is to walk around hungry. The human body is a machine. It needs fuel to function. Cars don't run without gas. Humans don't run without food. When the car is out of gas, the gas gauge tells you so. When the human body is not ingesting enough food to function without metabolizing existing fat and muscle, it sends a signal to the hypothalamus. This signal is called hunger.

Humans evolved fighting the elements and each other with one quest in mind—avoid dying of starvation. It was only in the past few hundred years—hardly a tick of the evolutionary clock—that a significant percentage of humans began to eat three meals a day. Our remote ancestors were wandering tribes who starved for days until an accurate spear throw took down an animal. It is this evolutionary history that is programmed into our brains, not the behavior patterns of a society where $5.00 can buy you a package of oreos and a gallon of milk.

Not only is it difficult to lose weight, but keeping weight off is an even greater challenge. A recent study at Rockefeller University demonstrated why. The researchers quantified the energy expended by individuals who had dieted and lost 10% of their body weight. The results showed that the dieters had a decrease in body energy expenditure, even when accounting for the loss in body mass.

Perhaps an example will make this clearer. Let's say a woman requires 2,000 calories a day to maintain her weight. She goes on a diet and loses 10% of her weight. It would follow that she should be able to maintain her new weight by eating 1,800 calories a day (10% less than 2,000 calories); but this is not the case. She has to eat in the range of 1,650 calories or else she will regain the weight she lost. This is why so many people keep gaining and losing the same 15 pounds.

Thus, the human body is not only programmed to avoid weight loss, but to return to its previous weight after an episode of weight loss. Why is this? Again, let's go back to our primordial ancestors wandering the plains in search of food. If the spear chuckers went into a slump, there were no 7-11s around to pick up a bag of Doritos. To prevent the tribe from starving, mother nature developed a mechanism that allowed the human body to utilize the little food available with greater efficiency—starvation metabolism.

Many weight-loss programs correctly emphasize the importance of exercise, but again, discipline is crucial too. More exercise simply increases one's appetite, just like driving a car a further distance requires more gas. This is why lumberjacks eat more than accountants. Muhammad Ali is right. The best exercise is the push away from the table.

Clever marketers have been successful at selling the gullible overpriced, unpalatable low-fat foods. Dietetic cheese, bread, beer, and ice cream proliferate on the supermarket shelves. There are even low-fat donuts! Many of my patients have told me that you can't add fat to your body if you eat low-fat food. This simply isn't true. The human body merely converts excess calories into fat. Gobbling a dozen low-fat donuts is a great way to force yourself to buy a new wardrobe.

As fewer workers make their living by manual labor, weight control is paramount to the country's collective health. Some physicians are advocating treating obesity as a chronic disease similar to hypertension and diabetes. Leveling with our patients by informing them that weight control requires discipline and occasional hunger pains would be a good start.

Joseph F. Bentivegna, M.D.

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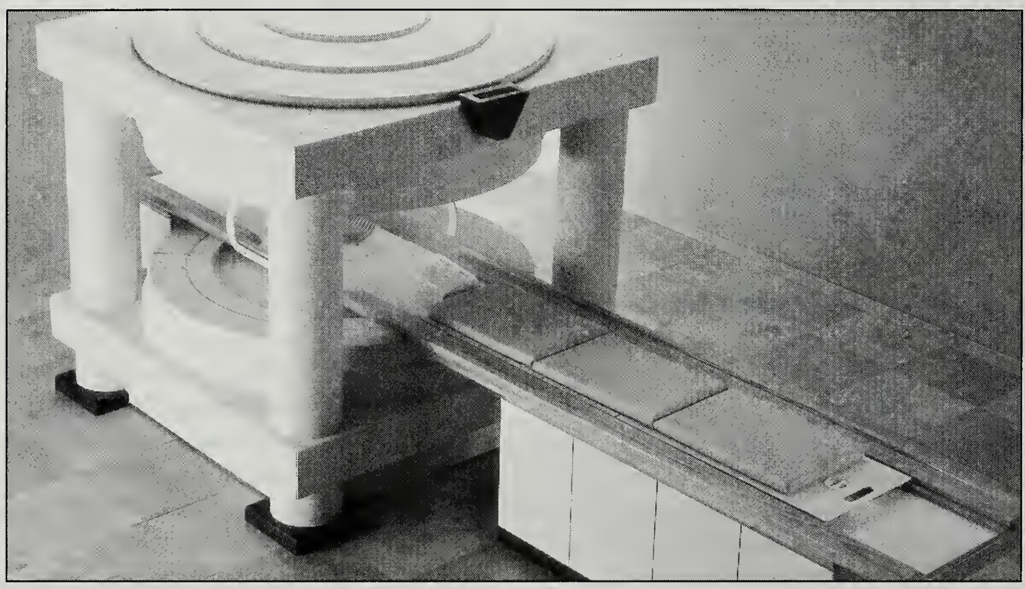

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50 Years Ago

From *The Connecticut State Medical Journal*

December 1945

Experiences at Nagasaki, Japan

LT. COMDR. BENEDICT R. HARRIS, MC—USNR AND
LT. COMDR. MARVIN A. STEVENS, MC—USNR

IN view of the general interest associated both with the effects of the atomic bombing of Nagasaki and the diseases and disorders encountered among the allied prisoners of war (POW) who had been interned in camps on the island of Kyushu in Japan we thought it worth while to set down our experiences in this area. As medical officers attached to the U. S. Navy Hospital "Haven" (hospital ship), we arrived at Nagasaki Harbor on September 11. We had pulled anchor the day before from Okinawa where we had been acting as a hospital and consulting center for the hundreds of ships of all description comprising a good portion of the Fifth Fleet. The last few hours of our trip had been rendered hazardous by floating mines (strewn by our air force some time before) which had to be detonated by gunfire from our accompanying cruisers and destroyer escorts. Finally we had to stand by until mine-sweepers arrived on the scene to clear our way into Nagasaki Harbor.

One of us (BRH) was a member of a small group which cast off in one of our LCVP's at the harbor entrance to make a preliminary survey of the dock area, particularly to select a suitable site for processing and screening the estimated 10,000 POW's who were to be evacuated from southern Japan via Nagasaki. The dock area was to have been cleared of Japanese by the small guard force which had preceded us, but we were ahead of schedule and the dock was lined with hundreds of Japanese. Because of the terrible destruction which had been wrought on Nagasaki, and since there was some apprehension as to what our reception might be, we went ashore armed, but fortunately our marksmanship was not tested.

Some warehouses were found alongside the dock which seemed suitable for our purpose despite their wrecked state, and the word was sent to our ship via "walki-talkie" to dock alongside the selected area. In the next 36 hours, with the aid of the ship's carpenters, plumbers, steamfitters, and other enlisted personnel, the entire area was cleared, cleaned-up, sprayed thoroughly with DDT to rid the area of millions of flies, lice, and other vermin, and a processing line was set up reminiscent of American belt-line production.

We had arrived at about 1430 Tuesday, September 11, and by 0800 Thursday September 13 train loads of ambulatory POW's and stretcher cases began to roll into the railroad siding alongside the dock. One of us (MAS) was in charge of a surgical rescue team and went to Omuta to investigate Camp No. 17 and Camp No. 25 and make arrangements for their transportation and safe return to the medical screening board headed by BRH at Nagasaki.

After treating a flight officer of a B-29 for multiple fractures (the sole survivor in a crack-up against the Nagasaki mountains while releasing supplies and food at 2,000 feet), one of us (MAS) entrained for Omuta equipped with medical and surgical supplies. Our group consisted of six doctors, six corpsmen, fifteen army personnel, and an interpreter from the University of Southern California who, because his family still resides in Japan, was to be designated only as "Chuck." Chuck was to prove one of the most valuable members of our organization by inducing the Jap officials to be most cooperative.

Reprinted from the *Connecticut State Medical Journal*, December 1945.

The 80 mile trip to Omuta took 10 hours and our group arrived in a state of semi-asphyxiation after burrowing through tunnel after tunnel with the car windows open. We divided in the night, half going to Southern Kyusha to investigate conditions in that area.

Camp No. 17 will serve as typical of the prison camps. It was opened on August 10, 1943 with the arrival of 500 American POW's from Philippine Prison Camp No. 1 at Cabanatuan. The camp was situated on reclaimed land in the vicinity of a coal mine along the edge of a bay, in the provincial manufacturing town of Omuta. The buildings were cheaply constructed Japanese style barracks with ten large rooms opening off a corridor. The rooms were large enough to accommodate comfortably 6 and 4 men in alternate rooms, and the flooring of these rooms consisted of straw matting. These mats were supported by a partial system of slat work holding them about six inches above the ground. At each end of the building there was a pit-type latrine constructed with wooden sides; a concrete urinal in each end of the building drained into an open dirt pit about three feet square. Bathing and laundry facilities were limited to wash stands placed between every other barracks, and a central bath house with hot water in a large concrete tank. There were about 38 barracks buildings and a population of roughly 2,000 POW'S. Heating facilities were five small clay pots in each building for the burning of coke. Workers were allowed to have fires for one hour after returning from work in the mines.

Mining was strip-mining, quite hazardous, and our POW's worked at different levels and from temperatures ranging from very hot to freezing. While underground the POW's were handled by Japanese overmen and these civilians were allowed to inflict such beating as they desired, without explanation. Twenty per cent worked in the zinc foundry and had better hours and better treatment.

The camp had Americans from the Philippines, Australians, Dutch, and British who had been taken at Singapore. Practically all prisoners exhibited evidence of the deficiency diseases on arrival at Camp No. 17 from other camps. One group had spent 62 days aboard ship enroute to Japan from Manila. Another group were from the survivors (300) of a detail of 1,600 officers and enlisted men who sailed from the Philippines in December 1944 and underwent severe air attacks in Subic Bay and at Takmo, Taiwan.

The staple item of diet was rice, usually mixed with wheat or Japanese millet (Korian) which has practically no food value. Vegetables supplies to camp ranged from rare beans and potatoes to bamboo sprouts, potato leaves, and vines and scallion tops. Meat was rare. Pears and oranges were received in season. Red Cross food was rarely received and in small amounts.

Dr. Thomas H. Hewlett (Major Medical Corps, U. S. Army) and his staff of six physicians, all POW's, under the command of Col. Robert Schott (Dental Corps) did a marvelous job with limited facilities and medical supplies. Their surgical instruments were made by hand by a Dutch instrument maker. There was no plaster of Paris—wooden splints were fashioned—bamboo traction was applied and bicycle spokes were stolen from Jap bicycles and were used in skeletal traction. No x-ray facilities were available and laboratory facilities were limited. These men became keen clinicians and their records are amazing. Anesthesia was limited to an insufficient amount of procaine tablets which were dissolved for spinal anesthesia. Nearly 200 major operations were performed with better than expected results. The camp had 122 deaths. The Japanese do not believe in a second operation and autopsies were difficult to obtain.

All nationalities had some psychoneurotic problems including thievery and homosexualism. There were five executions by the Japs for offenses such as incorrigible thievery, insubordination, and lack of respect. Ninety-five per cent of the officers and men were at least struck by guards and many were severely beaten with guns, sticks, straps, and boards. One of our orthopedic cases is a loss of both feet from punishment inflicted by having the culprit kneel for hours on a bamboo pile, sitting on his heels. This cut off the circulation and is very painful. Another form of punishment was to strip those in the guard house naked in winter and throw water on them every hour on the hour.

Whereas surgery was indicated in many cases, no immediate surgery was advisable and it was decided to send the POW's including 109 obvious hospital patients to the USS Haven group for screening. There were about 35 bad stretcher cases and these were in very poor condition.

Three Chinese POW camps were discovered containing 3,000 prisoners and having but one Chinese doctor and practically no supplies. Our supplies and those of Camps No. 17 and No. 25 were turned over to them after organizing a semblance of discipline and medical regime for them.

Everything needed was commandeered from the Japanese. B29's were dropping food and supplies at designated areas and all POW's were living off the countryside. Many were overeating. We commandeered Baron Mitsui's club (the Baron owned the mines) and demanded the best of service, viands, wines, and liquors. Geisha entertainment was also offered. Transportation, consisting of all the available trucks and cars in Omuta was used by the POW's. Samuri swords, Hari Kari daggers, silks, etc., were collected by our men. One Texan and three Chinese beat up FUKUHARA (the brutal Jap guard) necessitating examination and treatment by our rescue team. He is being saved for a criminal of war death.

One thousand POW's and 109 hospital cases were sent from Omuta to Nagasaki by special train in 5 hours on Saturday, September 1 5. When we stepped off the train at Nagasaki, dirty, tired, and rather bedraggled in appearance, we were mistaken to be returning prisoners and received a royal welcome.

Our screening procedure, roughly, was as follows: POW's, as they stepped off the train, were greeted by "hot" music by an orchestra from the USS Wichitaw. This greeting was psychologically exhilarating as the boys cheered and marked time to the music despite their deplorable condition. They then filed by desks where Army officers obtained data regarding their military status and arranged for messages to be sent to their homes. Following this they went by an ARC area where they received hot coffee and doughnuts donated by, and made aboard, our ship. They then filed by a row of tables where a corps of our nurses filled out short questionnaires pertaining to their previous and present health, more particularly to symptoms and signs of nutritional disturbances, avitaminoses, the diarrheal diseases, malaria, tuberculosis, and the amount of weight loss.

They passed into a covered enclosed area where they undressed completely, and put their belongings into a sea bag which was then thoroughly sprayed with DDT (powder). This bag was to be reclaimed later at the end of the processing line. From here they went to a long hall-like area which had been converted into a shower room. We had constructed two rows, each with ten showers, utilizing the city water from the dock area combined with a steam line from our ship alongside the dock to give warm water. Upon completion of the shower the men were thoroughly sprayed with DDT and then they filed by the medical screening board of 5 doctors where they were questioned and inspected with the aid of the health questionnaires filled out by the nurses. Those who appeared especially weak or malnourished, or who exhibited evidence of severe avitaminosis, or whose history suggested active malaria, dysentery, or tuberculosis were singled out, given slippers and a bath robe and pajamas, and were directed aboard the USS Haven by a physician whose sole duty was to route these men to designated beds on the hospital wards. Approximately 10 per cent had to be hospitalized and the remainder were considered well enough despite weight loss and moderate avitaminosis to go directly to waiting aircraft carriers, cruisers, destroyers for evacuation to Okinawa and then to their ultimate destination. These men were all thoroughly deloused by spraying and powdering with DDT, given new outfits or reclaimed their own deloused clothing. New outfits were complete from underwear to shoes, and were the first some POW's had had in three years. The very seriously ill patients were not put through the shower line. They were taken directly to another area where their clothes were removed, and thrown away. They were then sprayed with DDT and taken directly aboard the "Haven." It had been planned to process and screen about 1,000 men a day, and this schedule was carried out as per the original plan over a 10 day period.

Inspection of the POW's as they filed by, supplemented by brief questioning of each man, clearly indicated the unspeakably horrible and degrading conditions under which they had existed for two to three and one half years. Hard work in ship yards and mines, ragged clothes unsuited for the climatic and other conditions under which they worked, a pittance of rice and soup for their three meals, inadequate bathing facilities, vermin-infested living and sleeping conditions, together with brutality of the most vicious type had contributed to make their lot extremely unhappy and difficult of survival.

Many had been cremated following death from deficiency diseases complicated by pneumonia, from dysentery, malnutrition, and inadequate supplies or medical care. Even though the Red Cross had sent sufficient medical supplies the Japs had refused to give out adequate amounts of medicines such as sulfa drugs, vitamins, and anesthetics. Many of the prisoners going through the line were seen to have angulated healed fractures of the long bones of the forearms, the results of beatings by the guards.

Actually, practically every POW exhibited some degree of malnutrition and beri beri and other evidence of deficiency disease. The cases admitted were only the more serious of those seen. It must also be remembered that all of these camps had had food and vitamins dropped by plane for a period of one to three weeks and we saw these men in much better condition than they had been on August 15.

Aboard ship the men were put to bed, given frequent small feedings of a high-calory, easily-digestible diet rich in starches and proteins. They received high potency vitamins three times daily supplemented by thiamin chloride 50 mg intra-muscularly and 5 mg t.i.d. by mouth daily. Selected cases were given ascorbic acid and nicotinic acid. Intra-venous thiamine chloride, in 100 mg doses were given to those cases of beri beri which exhibited marked dyspnea. Marked diuresis promptly ensued, and weight loss of 8 to 15 pounds from loss of fluid in 24 hours was not uncommon. All patients received an x-ray of the chest, the blood was examined routinely for hemoglobin, hematocrit, and total proteins, urine examination, and examination of the stools for ova and parasites was also done, the latter only when indicated. On the surgical wards particular attention was paid to the inclusion of large doses of vitamin C and of nicotinic acid as experience indicated that these patients bleed easily and freely after even minor operative procedures.

A rough breakdown of the cases admitted to the "Haven" in the first seven days gives one a better idea of the disorders and diseases encountered.

Beri beri (moderately severe or severe)	312
Pellagra	18
Malnutrition (loss of 50 to 60 pounds)	64
Dysentery (blood or mucous in stools)	48
Tuberculosis (active)	38
Fever of unknown origin	24
Infections (including abscess, furuncles)	24
Burns (atomic bomb)	19
Fractures (unhealed)	15
Hookworm (corroborated)	21
Malaria (recent chills)	12
Jaundice (infectious)	8
Osteomyelitis	4
Bronchitis (with fever)	18
Pneumonia (atypical)	9
Arthritis	8
Cellulitis	7
Psychosis	2
Miscellaneous (including one leprosy)	65
Total (of approx. 7,000 POW's)	716

We have been impressed by several features: First of all the small incidence of psychosis; secondly the great incidence of the avitaminoses, particularly of both the dry and wet forms of beri beri, with the wet type predominating; thirdly the ability of these POW's to carry on despite weight loss of 50 to 60 pounds; fourth, the prompt response to adequate therapy. Dyspnea and tachycardia have been striking in the beri beri group, and the dyspnea seems to disappear early while the tachycardia persists. In a week it has been possible to discharge almost 25 per cent of the patients for further evacuation in transport ships. It is also worthy of comment that many of the POW's developed massive edema shortly after eating heavily of the rations dropped by plane, some of them becoming edematous for the first time It is presumed that diminished absorption due to acute diarrhea caused by the inability of the gastrointestinal tract to accept the marked increase in amount of food plus fluid retention caused by the increased salt intake, combined to be responsible for this phenomenon. Much work remains to be done with these patients, and further report will be made when it is possible to evaluate clearly their exact medical status and response to appropriate therapy.

Surgically all patients are retarded by malnutrition, many are poor surgical risks, are prone to infection, all severe orthopedic cases have multiple pressure sores, and all bleed freely and clot poorly following incision. Severe cases need daily blood transfusions and careful nurse care. Elective cases must be carefully evaluated before operative procedures are undertaken.

THE ATOMIC BOMB

The effects of the atomic bomb as we saw it may be divided into (a) physical destruction and (b) diseases, disorders, and injuries. During the course of our stay in Nagasaki we have had the opportunity of going through the devastated area and its environs, and of visiting a large school house which has been converted into a temporary civilian hospital. A few words best describe the physical effects of the bomb—unbelievable, awful, complete destruction and disintegration. We had seen the tremendous destruction caused by bombing and heavy gunfire in the destroyed city of Naha on Okinawa, and one of us (MAS) the destruction in the ETO, but the total destruction over so wide an area such as is present in Nagasaki from one bomb simply staggers the imagination. The center of the bombed area lies between a huge steel works, an ordnance factory, and the combined medical school and hospital. A few twisted, seared steel girders remain as mute evidence of the destructive force of the atomic bomb. The medical school and hospital situated on a hillside well above the surrounding area was completely gutted by heat and fire from the bomb, and a Japanese doctor informed us (in German) that the only survivors of the medical school personnel were those who were fortunate to be out of town that day. Everyone else was "extinguished." For miles around this area there is complete destruction and obliteration. Here and there a factory chimney or a single concrete wall stands pathetically alone. A Shinto shrine, with its two uprights and cross bars rises up in the center of the devastated area, curiously untouched. The area has the appearance of a huge slums clearance project where the buildings have been razed, the ground leveled by bulldozers, and the wreckage removed but we know that here there has simply been disintegration. One has no difficulty in finding charred skulls or fragments of long bones in the rubble. In the outskirts of the city there is scarcely a house which remains intact—roof and side walls are caved in, windows are devoid of glass, and the stench of decaying flesh and spoilage is persistently nauseating. The Japs move about defeated, bewildered, sullenly and silently making individual attempts to build flimsy shelter with the limited material at their disposal.

At the civilian hospital in the converted school house the scene was most pitiful. The patients lie on straw mats on the floor so close to each other that one has difficulty walking between them. Their families move right in with them, doing what they can to feed them and to help the few Japanese nurses in caring for the sick and dying. Vomitus, feces, stench, and millions of flies revolt even war hardened doctors. We have cut down the flies by the liberal use of DDT. About seventeen doctors and thirty nurses are doing what they can to help these victims. Their supplies are meagre and inadequate.

From our observation and from conversation with the Japanese doctors it is obvious that most of the casualties were immediate—from blast and the terrific heat engendered by the atomic bomb. Those who were found alive had burns of the "flash" type, chiefly first and second degree burns, extensive but not deep. Most of the cases we saw represented radiation effects at the time of the bombing, namely alopecia, bone-marrow depression with reduction of red blood cell count to between 2-3 million, leucopenia as low as 500, the granulocytes being particularly affected, bleeding into the skin, and from the mouth and intestinal tract, lethargy, and profound prostration and weakness. There had been several thousand deaths from this late radiation effect but many of the patients were beginning to show signs of recovery. As far as we were able to determine, there is not enough deposit of radioactive material in the area at present to produce deleterious radiation effects at this time and it has been determined that all the cases received their over radiation at the time of the actual bombing.

In conclusion we may state that this has been a most interesting experience. The horrors of war and especially of the destructive and disabling force of atomic bombing, even in its infancy of application in the science of war, has been so impressed upon us that we add our feeble voice to the demand that those terrific elements of destruction be controlled, by force if necessary, by only peace loving peoples, else we in turn destroy ourselves.

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Plan on attending any one of the informational and timely seminars from 5:30 P.M. to 7:00 P.M., then stay for the reception at 7:00 P.M.!

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Medicine's Agenda - Connecticut's 1996 Legislative Session

Financial Planning Techniques to Protect Your Assets

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What You Need To Know About 1996 Changes:

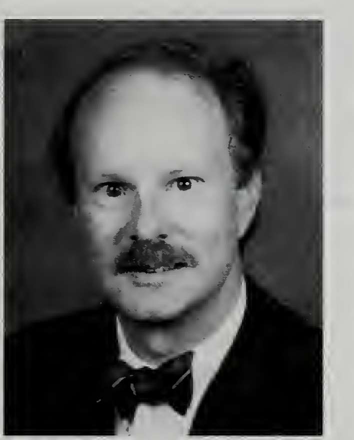
An Update on HCFA, ICD-9-CM/CPT

Plan to come early and stay late to browse the exhibit area. Take advantage of this opportunity to learn more about the latest products & services for you and your practice.

Symposium & Expo

Look for Registration
Materials in the Mail!

House of Delegates Address



At the halfway point of my term as president, I will review with the House of Delegates the activities of CSMS. We are working on three broad fronts: legislation, public education, and member services.

On the legislative agenda, our Hold Harmless bill was signed by Governor Rowland in August and is now the law. This is a great victory for Connecticut's doctors and demonstrates the effectiveness of organized medicine.

We are now gearing up for the short legislative session, scheduled to begin on 7 February. Our focus continues to be protecting both patients and physicians from the restrictions and limitations of the managed-care industry. We are developing legislation that combines the Patient Protection Act developed by the AMA and the Any Qualified Provider statute we sought unsuccessfully last year.

Our legislative committee, chaired by Dr. David Parke, is already spreading our message. At a town meeting in Guilford, hosted by Rep. Patricia Widlidz, committee members stressed the need for strict regulation of managed-care companies. Six more meetings are planned around the state. You will be receiving notification of the dates and locations. I hope many of you can attend.

CSMS has recently met with members of the Public Health Committee, including cochairs Sen. "Doc" Gunther and Rep. Anne McDonald. We presented physicians' views of the changes in health-care delivery, emphasizing again the Patient Protection Act and the Any Qualified Provider proposal. We discussed the effects of managed care, both in the private markets and now in Medicaid. These legislators are well informed on the issues and understand our concerns. In the weeks ahead, I hope to speak before the entire committee and present legislative proposals for this congressional session.

Meanwhile, our Ad Hoc Committee on Health Care, chaired by Dr. Sultan Ahamed, is updating the CSMS position on health-care reform for distribution to lawmakers, the media, our membership, and the general public.

We are also pursuing antitrust reform. Several of us CSMS officers recently met with Mr. Robert Langer. Mr. Langer served as Connecticut's Assistant Attorney General and head of the antitrust department prior to returning to private practice. Acting as a consultant to CSMS, Mr. Langer is helping us plan legislative strategy.

On a more personal note, I have been meeting with several members of the Rowland administration, including the governor himself. Mr. Rowland has expressed interest in our legislative agenda and has in the past expressed support for Any Qualified Provider. He does appear to be concerned that physicians, particularly those just starting practice, are being arbitrarily locked out of managed-care programs. I expect to be meeting with him again during the legislative session. And I am pleased to announce that the governor has appointed me to the Connecticut Progress Council, where I will represent medical services.

I have met on two occasions with Commissioner of Health, Stephen Harriman. We discussed the problems of the "open file" in the Department of Health and Addiction Services. A complaint filed there, no matter how trivial, can needlessly delay credentialing by managed-care organizations and thus restrict a physician's ability to practice. The commissioner clearly understands the unfair and punitive results of the open-file policy, and regulatory changes are now in progress to remedy the situation. In turn, CSMS has promised to recruit physician reviewers to speed up disposition of these complaints. Already an impressive number of you have volunteered your services. I expect the open-file backlogs and delays to improve substantially in the months ahead.

We also discussed with the commissioner our state-wide Physician Health Program and stressed the strong commitment CSMS has to physician health. We have reiterated our responsibility to ensuring public safety, while

(continued on next page)

emphasizing needed changes to encourage physicians in need of rehabilitation to seek help earlier in their illness.

I have met with Dr. Richard Ratzan, chairman of the Medical Examining Board, to strengthen our relationship with him and review physician disciplinary policies. This is the beginning of an on-going relationship with the Board, and a CSMS representative now attends all Board meetings.

I have met with Mr. Jesse Frankl, chairman of the Workers' Compensation Commission. We are seeking more direct participation in the writing of treatment protocols. Currently, we have been reviewing drafts of these protocols, and the chairman has been receptive to our comments and suggestions. In addition, he understands our complaints about arbitrary downcoding and fee slashing by managed care companies and is soliciting CSMS for specific examples. We continue to review bill guidelines and fee schedules for the program.

Upcoming meetings include one with Ms. Joyce Thomas, head of the Department of Social Services. Ms. Thomas will be ultimately responsible for the transfer of Medicaid insureds to managed care. CSMS is wary about potential adverse effects of this transition. Access to and quality of medical care can all too easily be threatened by for-profit HMOs. There must be mechanisms to evaluate these HMOs, and in this we physicians must play an important role.

CSMS believes that an informed citizenry is an essential defense against the commercialization of our profession. Therefore we have a number of ongoing projects for public education. The development of our Speakers' Bureau continues. A resource directory, containing the names of physician volunteers, is now being printed. This directory will be distributed to our legislators, the media, and community organizations so that CSMS can speak to the issues. We must publicize our views on managed care, tort reform, antitrust, and the many other critical issues of the day. For those so interested, we are hosting training sessions to prepare you for exposure to the media.

We are also nearing the final draft on our Health Insurance Consumers' Manual. This pamphlet will outline the pros and cons of indemnity and managed-care coverage. It will suggest questions and concerns people should consider before choosing a carrier or HMO. Specifically addressed will be restrictions on specialty referral, disincentives for physician reimbursement, capitation, and medical loss ratios. We hope to be able to distribute this pamphlet statewide early next year.

We are continuing to develop a database of patients worried about adverse effects of health-care reform. Last year CSMS distributed orange postcards for your waiting rooms. Approximately 7,000 patients returned these cards, signifying their stand against restrictions on physician choice and medical decision making. These patients will provide a resource to us as we lobby in Hartford.

CSMS is now meeting with senior groups all over the state to respond to the AMA endorsement of the GOP Medicare plan. Reception has been very positive as seniors see how difficult the issues are and recognize that we physicians are working to preserve their health-care options.

To serve our membership, we are pursuing a number of avenues. The work on "open file" protections has already been mentioned, and I will keep you informed of the regulatory changes in progress.

The Physician Health program continues to expand, now assisting 29 doctors and their families, 11 of these since the first of the year. We have obtained 501(c)(3) status from the IRS for a tax-deductible Physicians' Health and Education Fund. This will help defray the costs for participants and enable us to increase services to our members.

CSMS has sponsored PROCIS, a private credentialing company. Under the leadership of Dr. Edward Kamens, PROCIS can simplify the endless paperwork required by the many hospitals, insurers, and managed-care companies demanding credentialing information. I encourage all of you to consider subscribing to this service.

To improve communication between county and state, I hosted a dinner meeting of county presidents. We reviewed many of the member services which we both provide to improve efficiency and avoid redundancy. I hope to continue these meetings on a regular basis.

I will not review the accomplishments of the many other CSMS committees. Their work is summarized for you in *Connecticut Medicine* and in your handbook. I encourage you to read these publications carefully.

Looking back on the goals I set in my inauguration address in May, I believe that our agenda is on schedule. Both the legislators and the public are hearing our warnings about the managed-care juggernaut. They are beginning to understand how competitive, profit-oriented entrepreneurs threaten their own medical care. They read about neonatal tragedies due to premature discharge one day and outrageous CEO salaries the next. They learn that cardiologists provide the best care for heart patients but that their contracts restrict specialty access. Other examples appear daily in the nation's press. I believe the tide is turning, albeit slowly, in our favor.

I continue to solicit your ideas and suggestions, either directly to me or a member of the council. And I thank you all for your support and efforts on behalf of the Society.

Down-sizing Time: Efficient but Hardly Effective

ROBERT U. MASSEY, M.D.

> A doctor who cannot take a good history and a patient who cannot give one are in danger of giving and receiving bad treatment.—Paul Dudley White

IN their greed for profit our managed-care masters, most of whom know little or nothing about medicine, are so bent on managing time that each patient visit is but a brief encounter. "I saw the doctor for only about eight minutes," my neighbor told me, and asked, after attributing this irritating visit to managed care, "Why aren't you doctors fighting back?"

The business crowd who have moved in on the practice of medicine cannot be blamed for doing what they have been trained to do; they know, until they get sick themselves, that the purpose of medicine is to make money. They know also that standards for diagnosis and treatment can be written, are being written, and can be made into computer programs so that with a few key strokes the physician can generate a diagnosis from which a treatment plan will be printed out. They betray their ignorance of human nature and history by being quite certain that preventive medicine will make expensive diagnosis and treatment rarely necessary. "Can't 85% of all diseases be prevented? That's what I've read. Why don't you doctors get on with it?" Anyway, prevention could be ladled out by a string of low-paid health-care workers, social workers, nutritionists, exercise therapists, acupuncturists, naturopaths, group therapists, counselors, sex therapists, and spiritual gurus. None of this will make a dent in the costs of "the health-care industry," but will vastly expand profit margins and market share.

Years ago, a brilliant clinical scientist, having listened to as much prevention talk as he could stand, commented, "Wear seat belts, don't get fat, don't smoke, have one or two drinks a day, no more, walk up two flights, down three, and get your flu shot. What else is there?" The receptionist, while taking your blood pressure, could tell you all that in less than eight minutes, and maybe pass out a tract on safe condom use or low-fat chocolate bars, or even low-fat fat.

William Mayo is reported to have said that "...the ideal of medicine is to eliminate the need of a physician." This was Dr. Will's sentiment as an after-dinner speaker; as a surgeon he knew better. Preventing disease has, for the most part, been a byproduct of the industrial revolution, aseptic surgery, and the science of immunology. Even internists know that a world without surgeons would be a scary place indeed. We could stop worrying about population growth! And, by the way, AIDS is one of the most preventable diseases around and yet it is the major killer of young people, especially young men, and, world-wide, continues to roar right along.

It is time, more than anything else, that remains the essential element in the care of the sick and the worried well, and time it is that the management wizards want to "down-size." Even in medical schools students are taught to take a focused history, not a complete history, perform a focused physical examination, never mind asking about those things that matter to the patient, their jobs, their worries, their families, the world series, and the next election. The students' questions become stereotyped, and their manner patronizing as they ask a total stranger without looking up from the chart, "Well, Mary, what brings us to the clinic today?" After all, time is money, and Mrs. Mary Jones must be out and on her way to the lab in 10 minutes. No time to learn much about Mary. Teaching them how it will be in the real world, not how to change the world.

A professor of medicine told his house staff: "Take your time. Histories take time to unfold, and when they do, you're 90% along the way to a diagnosis and a plan." Another, a Regius Professor, said, "Let the disease declare itself if it's not obviously an emergency. You may not even need the lab!" Look again at Sir Zachary Cope's plan for the early diagnosis of the acute abdomen. An eight minute visit?

How much time is needed to feel and express sympathy, empathy, begin to care for the patient and show it?; how long to build a friendship, to be responsible *for* the patient, rather than *to* your friendly nurturing HMO?

Managed care, that is, care managed for profit, will, we pray, be a short footnote in medical history. If we don't bring it down, surely our patients will.

ROBERT U. MASSEY, M.D., Professor Emeritus, Division of Humanistic Studies, Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington.

This Month's Reading in Review

TIMOTHY B. NORBECK

Managed care is not basically flawed or evil—and the drive for profits isn't necessarily evil—but join them together and let the patient beware. The result is a system that at a minimum is leaving many patients dissatisfied, and at its worst is contributing to illness, and sometimes even fatalities."

Leonard Laster, M.D., distinguished professor
of medicine and health policy at the University of
Massachusetts Medical Center in Worcester
(Mass.) *Boston Globe* (5 November 1995)

During a speech delivered at the annual meeting of the American Public Health Association on 30 October, former U.S. Surgeon General C. Everett Koop said that he felt "rage" about the current state of the profession, charging that "health care decisions are increasingly being made by businessmen, not doctors." He went on to say that, "In my career, I have never seen such discouragement among public health professionals or physicians."

Baltimore Sun (31 October 1995)

"If you've seen one managed care plan, you've seen one managed care plan."

Columnist Victor Cohn of the *The Washington*
Post, JAMA (25 October 1995)

"After the shakeout, physicians will re-emerge as the dominant force in the health plans of the future. They are not going to be disenfranchised in this system; the consumer won't let that happen."

Stuart H. Altman, professor of national health
policy at Brandeis University and
chairman of ProPAC, *Medical Economics*
(9 October 1995)

"A chance to form doctor-hospital provider networks is the trade-off for the AMA. We think that's a good idea for patients too, simply because it will.... give consumers the upper hand and HMOs and insurance companies a run for their money."

Editorial in the *Atlanta Journal*
(13 October 1995) on the AMA's
endorsement of the GOP Medicare Plan.

In the 1995 ReliaStar State Health Rankings, Connecticut was considered to be the fourth healthiest state (tied with Hawaii) in the country.... ReliaStar, a subsidiary of Northwestern National Life Insurance Company, measured population health in 17 categories, including mortality, access to care, smoking, and cancer rates.

USA Today (24 October 1995)

According to a recent national survey, 55% of workers who call in to work sick actually spend the day dealing with family problems, relaxing, or attending to other needs.... Unscheduled absenteeism has jumped 14% since 1992 and 3.5% since last year.... The annual costs of sick days for some companies tops $668 per employee.

Scripps Howard/Newsday (22 October 1995)

Comparing the U.S. with other countries can be an exercise in futility: more Americans engage in high-risk behaviors than people in any other developed county. We have more drug-abuse-related illnesses; more AIDS; more pelvic-inflamatory disease; more teenage, unwanted, out-of-wedlock pregnancies, resulting in more premature and sick babies; more homicides and assault injuries, and more accidents, especially among the young. These behaviors, linked with such social pathologies as the breakdown of the family, chronic unemployment, homelessness, violence, and despair, cause Americans to end up in overwhelming numbers in the emergency rooms, intensive-care units, and morgues of our hospitals."

Leroy L. Schwartz, M.D., Princeton, N.J.
Commentary (October 1995)

Only in America: A minister and his wife sued Southeastern Guide Dogs, Inc. for $160,000 after a blind man learning to use a seeing-eye dog trod on the woman's toes in a shopping mall. The couple filed suit 13 months after the women's toe was allegedly stepped on and broken.

According to witnesses, the "victim" made no effort to get out of the blind man's way because she wanted "to see if the dog would walk around me." Each wanted $80,000. The case was eventually dropped.

Hartford Courant (27 October 1995)

TIMOTHY B. NORBECK, Executive Director, Connecticut State Medical Society.

From the Executive Director's Office

SUMMARY OF PROCEEDINGS CSMS HOUSE OF DELEGATES SEMI-ANNUAL MEETING

RAMADA INN, MERIDEN—15 NOVEMBER 1995

Reports and Addresses

The House received reports, addresses and/or remarks from the president, the council, the AMA Delegation, the executive director, Connecticut Medical Political Action Committee (COMPAC), Connecticut Medical Insurance Company (CMIC), and CSMS-IPA. All of the reports were published in the Handbook that was distributed to the delegates, with a few exceptions. The report of the President, Dr. Dickerman Hollister, Jr., appears as the President's Page in this issue and the Executive Director, Tim Norbeck's report appears at the conclusion of this summary.

Jesse Frankl, Commissioner of Worker's Compensation, addressed the House of Delegates and stated that he would like to meet with all the county associations on a one-to-one basis and explain the various problems encountered in the program. He also expressed the opinion that physicians are the most important part of the program.

PRINCIPAL ACTIONS TAKEN

(a) *Report of the President,* Dickerman Hollister, Jr., M.D., Greenwich. Dr. Hollister stated that he was working on three fronts, legislation, public education, and member services. The House voted to accept the report of the President which appears in its entirety in this issue of *Connecticut Medicine* as the President's Page. The report was accepted as information.

(b) *Report of the Council,* Joseph C. Czarsty, M.D., Oakville. The House voted to accept the report of the Chairman of the Council, which reviewed the activities of the Council since the last meeting of the House of Delegates. Minutes of the interim Council meetings have already been published in *Connecticut Medicine*. Special emphasis was given to the reports from related organizations such as CPRO, CMIC, and CSMS-IPA; the various reports given at each meeting by the president, the executive director, and the chairman of the Committee on Legislation. Several amendments to the CSMS bylaws were also reported on and the action on these recommendations appears elsewhere in this summary. The Council also submitted a budget for 1996 and the action taken on the Council's recommendation also appears elsewhere in this summary. The report was accepted as information.

(c) *Report of AMA Delegation,* Edward A. Kamens, M.D., Fairfield. The House voted to accept the report of the AMA Delegation. The report contained the principal actions taken at the 1995 Annual Meeting of the AMA House of Delegates, which included information on Medicare transformation, Medicaid, professional liability, tort reform, the tobacco industry, physician assistants and nurse practitioners, mandatory rating system for content of musical lyrics and videos, food and drug administration, and opposition to payment for prescription switching. The report was accepted as information.

(d) *Report of the Executive Director,* Mr. Timothy B. Norbeck, New Haven. The House voted to accept the report of the Executive Director, which appears in its entirety at the conclusion of this summary. The report was accepted as information.

(e) *Report of the Connecticut Medical Political Action Committee* (COMPAC). Roger S. Beck, M.D., Wethersfield, Chairman of the Connecticut Medical Political Action Committee, gave an update on the current status of COMPAC. He reported that the Committee has rewritten its bylaws and restructured the Board of Directors to increase county membership representation. Membership has increased to 545, which is 80% of the goal set by the American Medical Political Action Committee (AMPAC) and makes Connecticut the leader among the New England states. He stated that the bad news is that 545 out of 6,700 members of CSMS is only 8%.

He further reported that the goal is to support state legislators who genuinely care about the patient-physician relationship and other patient-physician issues as they consider changes in the delivery of health care. He stated that contributions do not guarantee any votes, nor should they, but they may open doors for physicians to discuss their concerns with these legislators. A portion of sustaining membership dollars is sent to AMPAC, the AMA's Political Action Committee. The media have reported in detail the success the AMA has had in providing input to medical legislation in the House of Representatives. He stressed that since so much of the future of medicine is being decided by the political process, all physicians should join COMPAC. The report was accepted as information.

(f) *Report on Connecticut Medical Insurance Company* (CMIC). Sultan Ahamed, M.D., President and Chairman of the Board of Connecticut Medical Insurance Company (CMIC) reported that many significant accomplishments have taken place since the last meeting of the House of Delegates. The following are the most newsworthy:

1. Legislation to Prohibit Hold Harmless Agreement was signed into law. Every physician in Connecticut will benefit from the passage of this legislation, the first of its kind in the nation.
2. CMIC had its rating upgraded to "A" (Excellent) by A.M. Best, the most widely recognized and respected insurance company rating organization in the world. According to Best, CMIC's "prudent underwriting, active risk management and sound loss reserving has allowed it to build a long-term stable market for this coverage" and also that "the company is prudently managed".
3. At this time last year membership was 2,824 and has risen by 103 members to 2,927 members. All eight counties reported net new members.
4. Average policyholder's premium shows a steady decline. Since 1990, the average premium paid per physician policyholder has dropped from $17,500 to $14,200.

It was reported that in 1996 CMIC will offer a significantly broader scope of insurance coverages to its members. Working with other A+ and A++ insurance companies, CMIC will be able to place the additional property and liability coverages that a medical practice needs as well as coverages for personal insurance such as homeowners and auto. The report was accepted as information.

(g) *Report on CSMS-IPA:* Dr. David D. Thompson, Jr., M.D., President, reported on current activities of the IPA as follows:

1. *Worker's Compensation:* MD COMP MED, which is a new managed worker's compensation product for M.D. Health Plan. The network of physicians will include all members of the present IPA who wish to participate.
2. *Managed Medicaid:* The network for managed Medicaid will be the IPA network with some additional providers who will be subcontracted for this product alone. These individuals will be credentialed by the CSMS-IPA but will not be permitted to participate in any product other than the managed Medicaid program.
3. Pro Behavioral Health will be providing the Mental Health and Substance Abuse services for both inpatients and outpatients. The outpatient portion is the IPA portion. The IPA is working with PRO Behavioral System through their Psychiatric Liaison Committee to resolve some of the problematic issues.
4. *Preauthorization of Testing:* This has gone reasonably well with the exception of problems related to some tests failing to be preauthorized. An initiative will be taken shortly to correct this problem.
5. *Unauthorized Lab Utilization:* Since the new contract with Metpath is capitated, and all blood sent to Metpath has in essence been paid for in advance, doctors who continue to send laboratory testing to other medical laboratories are costing the plan significant sums of money.
6. It was reported that fee evaluation and utilization studies are being undertaken.

The report was accepted as information.

(h) *1996 Budget:* The House voted to approve the budget for 1996, as prepared and recommended by the Council, and that the dues remain at $340.00

(i) *Resolution on Managed Care:* At the annual meeting, a resolution on "Managed Care" was referred to the Council by the House of Delegates for further study. The Council reported that an analysis of the resolution was undertaken which indicated that many of the issues raised have been addressed or are currently being addressed. Currently, CSMS does have a comprehensive policy statement regarding health-care reform which is being updated. CSMS has also adopted a resolution that directs our legislative agenda toward pursuing the AMA's Patient Protection Act. A coalition is being developed to work on managed-care issues and that a series of seminars to provide members with information on anti-trust concerns, capitation, and other managed-care issues are also being planned. This issue was referred to the CSMS Ad Hoc Committee on Health Care for implementation and the Committee reported that they are in the process of finalizing a CSMS Action Plan which will outline and coordinate several CSMS activities related to managed care and patient protection. The Action Plan will include education of the public, the legislature, the administration and CSMS members. The House accepted the report of the Council on this issue.

(j) *Bylaw Amendments:*

1. *Quorum for Voting in the House of Delegates:* It was voted to refer this proposed amendment to the

Council for consideration, given the possibility that the proposed changes could make it easier to change the bylaws than to conduct ordinary business.

2. Parliamentary Procedure: It was voted to approve changing the rules of order from Roberts to Sturgis.

(c) *Establishment of Committee on Physician Health in CSMS Bylaws:* Approved with minor amendment as follows:

Article X—Committees of the Council

Section 3. Physician Health Committee

The Society shall have a Physician Health Committee to act as a medical review committee engaging in peer review as it relates to physician health and as defined and described in subsection (4) of Section 19a-17b of the Connecticut General Statutes as of 15 November 1995. The committee shall promote or engage in activities designed to achieve those objectives, including engaging in activities designed to improve the quality of health-care services rendered by physicians or others by improving and monitoring their health status.

The committee shall work with the Physician Health Program of the society, which program shall, on behalf of the committee, execute and perform the functions of the committee to improve the quality of health-care services rendered. The committee shall have such members, representatives, and advisors as the Council may, from time to-time, consider necessary or advisable to assist the committee to discharge its duties and achieve its goals and functions. Any member of the society in good standing may be appointed to serve on this committee. The terms and duties of members serving on this committee or as representative or advisor shall be set by the Council but, in any event, shall be reviewed annually by the Council.

(k) *Resolutions:* Five resolutions were received and acted on as follows:

1. *Effect of Medicaid Managed Care on Access to Medical Care:* Approved with minor amendment as follows:

"Resolved, the Connecticut State Medical Society shall monitor the effects of reimbursement rates on access to care under the new Medicaid managed-care system, and make a report at the next House of Delegates with any needed recommendations."

2. *Condemnation of Health-care Plans Which Penalize Physicians for Providing Indicated Medical Care:* The following resolution was presented:

"Resolved, that the Connecticut State Medical Society shall initiate a public awareness campaign condemning as unethical and anticonsumer the practice by some health-care plans which financially penalize physicians for providing appropriate medical care, and be it further

"Resolved, that concomitant with the start of the public awareness campaign which condemns those health insurance reimbursement systems which are unethical and anti-consumer, the Connecticut State Medical Society shall notify the public of any and all health insurance plans operating within the State of Connecticut which financially penalize physicians for providing appropriate medical care, and be it further

"Resolved, that the Connecticut State Medical Society shall forward a copy of this resolution to the Council on Ethical and Judicial Affairs of the American Medical Association for inclusion in the "Code of Medical Ethics" stating that it is unethical for physicians to participate in a health insurance plan which provides direct financial incentives for withholding indicated medical care."

The House adopted the recommendation of the reference committee as follows:

That the House of Delegates appreciates the spirit in which the resolution was intended, and would carry it out:

(a) By endorsing AMA Guidelines #285-982, Section 3 which reads:

"When physicians are employed or reimbursed by managed-care plans that offer financial incentives to limit care, serious potential conflicts are created between the physician's personal financial interests and the needs of their patients. Efforts to contain health-care costs should not place patient welfare at risk. Thus, financial incentives are permissible only if they promote the cost-effective delivery of health care and not the withholding of medically necessary care.

"Any incentives to limit care must be disclosed fully to patients by plan administrators upon enrollment and at least annually thereafter.

"Limits should be placed on the magnitude of the withholds, bonuses and other financial incentives to limit care. Calculating incentive payments according to the performance of a sizable group of physicians rather than on an individual basis should be encouraged.

"Health plans or other groups should develop financial incentives based on quality of care. Such incentives should complement financial incentives based on the quality of service used."

(b) By directing the Council to develop educational and informational programs for physicians and consumers to allow ethical and informed decisions in the managed health care setting.

(3) *Ethical Accountability with Positions of Hospital Authority:*

The House voted that the following resolution be referred to the CSMS Council for review, calling its attention to the AMA's Council on Ethical and Judicial Affairs opinion 407.

"Resolved, that the Connecticut State Medical Society regards any attempt by the chairs or other paid physicians of the hospital clinical departments and/or sections who use their position of power to influence the granting of hospital privileges as a means for controlling patient-care referrals to be a breach of medical ethics, and be it further

"Resolved, that the Connecticut State Medical Society will make passage of this Resolution by the American Medical Association a high priority to ensure (1) the ethical conduct of physician members in positions of hospital authority, and (2) that the care recommended to a patient is in the best interest of the patient and not in the best interests of the entity(ies) contributing to the compensation of the hospital clinical department and/or section chairs."

(4) *The Conversion of the Connecticut Medical Insurance Company from a Mutual to a Stock Insurance Company:*

The House voted that the this resolution not be adopted in view of the recent study by the CMIC Board.

(5) *CPT Coding for Immunization Injections:*

It was voted to refer the following resolution to the Council without recommendation:

"Resolved, that the AMA use its influence to urge third party payors to utilize the CPT Codes which were created, to provide a uniform language that accurately describes medical, surgical, and diagnostic services performed by physicians.

AWARDS
CSMS PAST SERVICE AWARDS TO OFFICERS AND COUNCILORS

Officers

Marjorie G. Petro, M.D., Willimantic—Secretary 1989-1995

Neil H. Brooks, M.D., Rockville—Speaker of the House of Delegates 1992-1995

Sultan Ahamed, M.D., Norwich—Councilor-at-Large 1993-1995

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Address of the Executive Director

CSMS House of Delegates—15 November 1995

TIMOTHY B. NORBECK

DURING the Washington debate over how to repair a sagging and financially debilitated Medicare program, this nation's physicians have declared their willingness to be a part of the shared sacrifice to get it on sound financial ground again. But not to be the sacrifice. As you know, partisan politics are at a frantic, decisive, and fever pitch on this issue.

Politicians, supposed to be the best among us, now pander to the worst in us. One of the Congressional leaders recently came out strongly in favor of tax reform and said that "those who have prospered and profited from life's lottery have a moral obligation to share their good fortune."

Not very impressed by the sincerity behind this remark, one of the Congressman's constituents, wrote him as follows: "Congressman, I note that your annual income is considerably higher than mine. 'Life's lottery' sure has been good to you! By your reasoning, you clearly have more than you are entitled to. To relieve your conscience, I will accept as much of your annual 'good fortune' as you are ashamed to keep. A stamped, pre-addressed envelope is enclosed for your convenience." I'm sure that it doesn't surprise you that he is still waiting for a response.

With the proposed legislation to make substantial cuts in the growth rate in Medicare spending, senior citizens in Connecticut and around the United States are fearful and confused about what such cuts mean for them and their loved ones.

Some media portrayals have impacted adversely on the AMA, as you know, and some vulnerable elderly mistakenly have been led to believe that doctors didn't care about them.

Too much information has come from those who have a stake or a partisan view, Republican or Democrat, on all this. As Dr. Hollister said: We are making an effort to speak to our senior citizens about the proposed legislation—a just-the-facts and nothing-to-sell approach—and I believe they have a better understanding of Medicare, the proposed changes, and perhaps most important of all—the physicians' continuing commitment to their care. There is a great deal of misinformation out there, much of it directed toward senior citizens, and we must do our best to set the record straight.

On a more positive note, there is good news with respect to tort reform.

A study published by the National Bureau of Economic Research in Cambridge, Mass., and believed to be the first detailed statistical examination of the economic effects of liability limits, found that overhauling the legal system led to major gains in jobs and economic growth.

Some 14 of 17 industries studied, benefited sometimes dramatically.... In an average state, employment grew by almost 18% in miscellaneous repair and services, and 23% in amusement and recreation.... Conversely, employment fell when plaintiff-friendly laws were enacted.

Many more in Congress are coming to recognize this. We don't yet know if the $250,000 limit on pain and suffering, as embodied in the Medicare proposal, passed by the House of Representatives but not the Senate, will survive the test after the conference committee, presidential veto, and subsequent negotiations. Trial lawyers are doing everything possible to stop it. Delays are always part of their tactics.

It was President Franklin Pierce from New Hampshire who first spotted it. In referring to the Congress, he described it as a body where there are always more than one hundred talking lawyers. You can't make a calculation, he said, upon the termination of any debate.

Speaking of lawyers, the story is told of an American explorer who came upon a tribe of cannibals who were about to sit down to a hearty meal of human flesh.

Chatting with the cannibal's chief, the explorer was astonished to find that he had been educated in the United States, held a law degree from Harvard, and had been a prominent trial lawyer.

"Do you mean to tell me," demanded the explorer, "that you attended law school only to return back here to eat humans?"

"Oh, yes," replied the chief "But, of course, now I use a knife and fork."

Included in the Medicare legislation that was passed by the House and Senate and is now in a conference committee, was the provision that would allow physician sponsored networks, or PSNs, to compete in the marketplace along with insurance companies. The legislation recognizes the benefits to Medicare beneficiaries of allowing PSNs to contract directly with Medicare as health plans.

Surprise! The insurance industry does not want to have to compete against other qualified entities in the healthcare marketplace. Understandably, since they are making enormous profits, it is to their advantage to keep physicians, hospitals, and others out of the market. It was interesting to note that the insurers have howled and whined that such legislation would make for an unlevel playing field—as if there ever was a level playing field for physicians in the arena so dominated by insurers.

They conveniently forget that their HMO dynasties began back in the 1970s with the help of grants, technical assistance, tax break, and other special incentives and considerations from the government. And they have the gall to complain about fairness?

Just last week the president of the Health Insurance Association of America claimed that they don't mind the competition. Yeah, right. He said they just want to make sure that the playing field is level. Believe me, the last thing insurers want is people being able to choose between Prudential and the Mayo Clinic.

The Alliance for Managed Care, which represents Aetna, Cigna, Prudential and United Healthcare, placed a full-page ad in the *Washington Times* last week criticizing the House Medicare reform bill over the PSN provisions. This is merely the first step they will take in a determined journey to derail the PSN legislation.

I found it very interesting, although it went virtually unnoticed, that a *N.Y. Times* editorial, in commenting about the proposed Medicare legislation, referred to the AMA as "the only constituency with enough power to defeat the plan." That is quite a concession to the nation's doctors and the AMA. If the *Times*, not ever to be confused as a pro-physician publication, can make such an admission, imagine what good things physicians can do if they stay together.

Of course, insurers and managed care continue to be on the front burner. Again it should be said that CSMS and AMA do not oppose managed care per se. There are good and effective models to cite.

But physicians do oppose managed profiteering where the delivery of care is more of an industry than it is a human service—where pluralism and individual choice, for both patient and physician, is at risk—where health plans are owned and operated to benefit shareholders and not patients—and where the pressure is more to save money than to save lives. That is where medicine has a problem.

As a University of Massachusetts physician has said: Managed care is not basically flawed or evil—and the drive for profits isn't necessarily evil—but join them together and let the patient beware.

While it may be popular to view insurers as powerful juggernauts impervious to oversight or regulations, especially in this state, I do perceive a few chinks in their armor of late.

Insurers are under fire, as you know, on the drive-thru deliveries they have been attempting to impose on new mothers. It is a national furor, and legislators are involved and concerned.

And you are probably aware of the criticisms directed at the insurance industry and health plans today for not sharing their discounts with their patient-subscribers—those same discounts that are gouged out of the hides of physicians and hospitals.

Word of this hidden and disingenuous cost shift is spreading, and people across the country are filing class-action lawsuits against private insurers.

The response from the industry is as arrogant as you might expect—"people haven't been reading the fine print," they say, "details of provider discounts are proprietary." Not exactly endearing statements to gain the public trust. As Victor Cohn of the *Washington Post* puts it: "If you've seen one managed care plan, you've seen one managed care plan."

Even Robert Blendon of Harvard's School of Public Health says that we are witnessing the emergence of new medical consumer protection laws. There's an alliance between the patient and the physician, he says. Both want medicine to be practiced according to the highest professional standards, not according to the industry's bottom line.

Recently the *Los Angeles Times* completed a seven-month investigation of California HMOs and published their findings that they withhold some services from patients for no other reason than that they are expensive.

In a series of articles in late September, the *New York Post* took insurance companies to task for loopholes in HMO laws and regulations. Legislators in that state are now talking about dramatically overhauling New York's regulatory system for managed-care companies. The spill-over effect can only help us.

Employers in Minnesota are reconsidering their association with the state's three largest HMOs because of concerns that they are spending millions of dollars on business matters instead of medicine, are engaging in destructive price wars, and are stifling rather than stimulating new approaches to care.

The chairman of the employer coalition said that the plans are competing on all the wrong things and added that "we want our employees to have a long-term relationship with their doctors. We can't win if they're moving from provider to provider."

The Business Health Care Action Group in Minnesota—which includes General Mills, Honeywell, Pillsbury, and 3M—has announced that starting in 1998, it will allow employees of its 21 member companies to choose among a number of "care systems" run by physicians.

More people are coming to understand that profiteering by unregulated health-care monopolies are reducing patient care benefits, physician and provider reimbursements, patient choice, and physician autonomy.

A Bristol, Connecticu, woman recently wrote the *Hartford Courant* that "health insurers are supposed to pay for health care, not deliver it. It is ironic that we have demanded the highest standards from our physicians, including a long education and training process. Yet we took the decision-making out of the hands of physicians and put it in the hands of those devoted to making profits for their stockholders. Something is wrong with this picture, she said. Patients will never be deluded into thinking that their insurance company cares as much about their health care as does their physician.

Outrageous insurer CEO salaries tell another story. Insurers love to criticize physicians for making a profit under indemnity insurance without being at risk. I would ask of Norman Payson who made $16 million last year as CEO of Health Source: "What risk did you take? How many decisions did you make last year which improved someone's life? And how many decisions did you make to take away or restrict someone's benefits?"

And just two weeks ago, the president of Empire Blue Cross and Blue Shield in New York echoed what the AMA and we have been saying: That intelligible full-disclosure information should be available to patients and physicians, that health plans make clear the guidelines they want their doctors to follow, that plans should fully disclose their payment to physicians, including bonuses related to cost containment and quality of care, that plans should disclose the treatments not covered, and finally, that health plans should pay for emergency coverage for consumers who believe they have a legitimate emergency. He concluded his remarks by saying that health plans have to stop ignoring the public's fears and acting so much like cold insurance companies—that they should have to start listening more like doctors.

Slowly but surely, the tide is beginning to turn. The public, legislators, and the media are beginning to understand that managed care has its dark side. A growing number of America's patients recognize that a health plan needs to represent more than a Wall Street windfall for insurers who probably won't even be around to see the consequences of their actions. They are not going to put up with all the constrictions and limitations that the budget bureaucrats are carving out for them. They will not accept a new medical world that treats them according to the averages. People want to be acknowledged and dealt with as individuals.

We need to pursue our legislative agenda with every degree of unity and vigor that we can muster, and we need Connecticut's patients to join us in the struggle. We need to put faces on those people for our legislators. To that end, we have developed a data base of some of those patients who want to go on record for choice of physician and against insurer omnipotence, and we are building on it.

We are also part of a coalition determined to give health care back to physicians and patients. The insurers had best be ready for the gathering storm.

We must all work together. Many people still question whether one person's efforts really can make a difference. Consider the phenomenon that meteorologists call the "Butterfly Effect": A single butterfly stirs, deep in a forest. The motion of its wings makes tiny air currents. At just that moment, a passing swirl of air happens to pick up those tiny currents, and they become a puff of breeze. Then a momentary gust picks up that breeze and it becomes a gentle wind—and so on, and so on, until, weeks later, the movement of that one butterfly at that one moment changes the course of a tornado on the other side of the globe!

All of us in the universe are linked, over time, and over distance. One butterfly, one person, can make a difference. A big difference.

Much has been made of the differences among physicians in the House of Medicine. So many of them have been caused by our insurer adversaries. We have heard too much about them and too little about the many more things that bring physicians together. For example the caliber of people driven to medicine in the first place, from the oldest old-timers to the newest of medical students—to the inherent faith placed in you by all your patients. After all, what other profession can give life back to those people who are near death? What other profession has the responsibility of helping a person and his or her family through the horror of a cancer diagnosis? What other profession has the compassion and knowledge combined to help people live …, and die, with dignity?

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You and your colleagues are the core of the health-care system. You are its heart and soul. Do not lose that heart.

I had the opportunity this summer to address medical executive colleagues around the country and I mentioned to them that toward the end of George Bernard Shaw's life, a reporter challenged him to play the "What if" game.

"Mr. Shaw," he began, "you have been around some of the most famous people in the world. You are on a first name basis with royalty, world-renowned authors, artists, teachers, and dignitaries from every part of this continent. If you had your life to live over and could be anybody you've ever known," the reporter asked, "who would you want to be?"

"I would choose," replied Shaw, "to be the man George Bernard Shaw could have been, but never was."

You see, as Studs Terkel says in his book, *Working*, "most of us are looking for a calling, not a job. Most of us have jobs that are too small for our spirit. Jobs are not big enough for people." You and your physician colleagues have that special calling that is so satisfying to the spirit.

We who work in the trenches with you and for you like to think that we are part of that calling. We are fortunate indeed, as I mentioned this summer to the medical executives, to work with and for the noblest profession of them all, medicine. We should be proud of what we do and for whom we do it. We never know what we do in our work that will be remembered. It has nothing to do with job titles. It has everything to do with the faith, vision, dedication, and love that we bring to it.

In closing, I do not want physicians to be chattels bought or sold in a doctor auction. I do not want physicians to be so hassled that they have little time for patients. I do not want physicians' medical judgment to be subservient to some bureaucrat's rigid adherence to the bottom-line. More important: Neither does the public, your patients!

I do want physicians who are happy being physicians, who go the extra mile for me and my loved ones, who think about the case at home, … I do want physicians who feel good about their role in society, and whose medical judgments always prevail in medical decisions. More important: That's what your patients want, too.

Make no mistake about it: That is what we are fighting for, and that is why it is so important for us to stand together and not lose heart.

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The Society maintains the Physician Placement Service as a *free* service to the medical profession, hospitals, and communities in Connecticut.

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***Physicians wishing to locate* in Connecticut may call the office requesting opportunities in their specialty. Also, candidates are invited to submit a resume to be kept on file with the Society. An announcement of a physician's availability will be published in two issues of *Connecticut Medicine* as space permits.**

Listing of physicians in the Placement Service does not in any way represent certification by the Society. Investigation of credentials and experience is the responsibility of those seeking applicants for positions.

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Journal of the Connecticut State Medical Society

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